अखिल भारतीय आयुर्विज्ञान संस्थान राजकोट, गुजरात 360110
All India Institute of Medical Sciences, Rajkot, Gujarat 360110
A Central Autonomous Body under PMSSY, MoH&FW
Government of India www.aiimsrajkot.edu.in

AIIMS/Rajkot/Admin/Recruitment/NF/06/2023-24/5469 **Dated: 07.10.2023**

ADVERTISEMENT FOR RECRUITMENT TO VARIOUS Group 'A', 'B' and 'C' NON-FACULTY POSTS ON DIRECT RECRUITMENT BASIS AT AIIMS RAJKOT

AIIMS Rajkot is an Apex healthcare Institute, established by the Ministry of Health and Family Welfare, Government of India under the Pradhan Mantri Swasthya Suraksha Yojna (PMSSY) with the aim of correcting regional imbalances in quality tertiary level healthcare in the country and attaining self- sufficiency in Graduate and Postgraduate Medical education and Training.

The Executive Director, AIIMS Rajkot invites online applications from the Indian Nationals for recruitment to the following Non-faculty posts on Direct recruitment basis:

Sl No.	Name of post	Group	Pay Level	No. of Vacancies					
				UR	OBC	SC	ST	EWS	Total
1.	Assistant Laundry Supervisor	C	Level-4	1	0	0	0	0	1
2.	Assistant Nursing Superintendent	B	Level-9	3	0	0	0	0	3
3.	Assistant Stores Officer	B	Level-7	1	0	0	0	0	1
4.	Blood Transfusion Officer	A	Level-11	1	0	0	0	0	1
5.	Clinical Psychologist	A	Level-10	1	0	0	0	0	1
6.	Dietician	B	Level-7	2	0	0	0	0	2
7.	Junior Accounts Officer	B	Level-6	2	0	0	0	0	2
8.	Junior Warden (Housekeepers)	C	Level-2	2	0	0	0	0	2
9.	Librarian Grade-III	B	Level-6	1	0	0	0	0	1
10	Lower Division Clerk	C	Level-2	6	2	1	0	0	9
11	Medical Officer AYUSH	A	Level-10	1	0	0	0	0	1
12	Medical Physicist	A	Level-10	1	0	0	0	0	1
13	Medical Record Technician	C	Level-4	5	1	0	0	0	6
14	Medico Social Service Officer Grade I	B	Level-7	2	0	0	0	0	2
15	Office Assistant (NS)	B	Level-6	4	1	0	0	0	5
16	Personal Assistant	B	Level-6	2	0	0	0	0	2
17	Physiotherapist	B	Level-6	1	0	0	0	0	1
18	Private Secretary	B	Level-7	1	0	0	0	0	1
19	Junior Engineer (Air Conditioning & Refrigeration)	B	Level-6	1	0	0	0	0	1
20	Junior Engineer (Civil)	B	Level-6	1	0	0	0	0	1
21	Junior Engineer (Electrical)	B	Level-6	1	0	0	0	0	1
22	Junior Hindi Translator	B	Level-6	1	0	0	0	0	1
23	Junior Medical Record Officer (Receptionists)	C	Level-5	2	0	0	0	0	2
24	Speech Therapist /Technical Assistant ENT	B	Level-6	1	0	0	0	0	1
25	Assistant Administrative Officer	B	Level-7	1	0	0	0	0	1
26	Technician (Laboratory)	B	Level-6	1	0	0	0	0	1
27	Security cum Fire Jamadar	C	Level-4	1	0	0	0	0	1

28	Stenographer	C	Level-4	5	1	0	0	0	6
29	Store Keeper	B	Level-6	3	1	0	0	0	4
30	Technical Officer (Dental)/ Dental Technician	B	Level-6	1	0	0	0	0	1
31	Technical Officer (Technical Supervisor)	B	Level-7	2	0	0	0	0	2
32	Technical Officer Ophthalmology (Refractionist)	B	Level-6	1	0	0	0	0	1
33	Technician Prosthetics or Orthotics	B	Level-6	1	0	0	0	0	1
34	Upper Division Clerk (UDC)	C	Level-4	3	0	0	0	0	3
35	Warden (Hostel Warden)	B	Level-6	2	0	0	0	0	2
36	Yoga Instructor	B	Level-7	1	0	0	0	0	1
37	Staff Nurse Grade I (Nursing Sisters)	B	Level-8	21F;5M	12F;3M	6F;2M	3F;1M	4F;1M	58(46F; 12M)
Total				92	21	9	4	5	131
AIIMS Rajkot follows 4% Horizontal reservation for PwBD.									

F: Female; M: Male

Note:

1. All the above-mentioned posts are identified suitable for PwBD candidates (with specified disability). Horizontal reservation of 4% and other relaxations shall be admissible to PwBD candidates as per the DoPT No.36035/02/2017-Estt (Res),Govt. of India rules.
2. Horizontal reservation of 10% in Group 'C' posts and other relaxations shall be admissible to Ex-servicemen (Ex-SM) candidates as per the Govt. of India rules.
3. As per decision of the CIB, 80% posts (category wise: UR-21, OBC-12, SC-06, ST-03, and EWS-04) of Senior Nursing Officer are reserved for female candidates.

Essential Qualification for the posts:

1.	Assistant Administrative Officer	21-30 Year	**Essential:** Degree from recognized University or its equivalent **Desirable** 1. MBA/PG diploma in management from recognised Institutes. 2. Knowledge of Government Rules and Regulations.

			3. Proficiency in Computers.
2.	Dietician	Between 21 - 35 years.	1) M.Sc. (Home Science Food and Nutrition)/M.Sc. (Clinical Nutrition and Dietetics)/ M.Sc. (Food Science & Nutrition)/M.Sc. (Food and Nutrition Dietetics)/M.Sc. (Food Service Management and Dietetics) from a recognized University/Institution. 2) 3 years' experience in the line preferably in 200 bedded Hospital.
3.	Assistant Laundry Supervisor	Between 18-30 years	12th pass or its equivalent from a recognized Board/School. Diploma/Certificate in Dry Cleaning/Laundry Technology from a recognized Institute. 2 years experience in a reputed mechanized Laundry.
4.	Assistant Nursing Superintendent	Between 21-35 years	**Essential:** (i) B.Sc. Nursing (4 year course) from a recognised institute/university. OR B.Sc. (Post-certificate) or equivalent such as B.Sc. Nursing (Post-basic) (2 year course) from a recognised institute/university. (ii) Should be registered with the Indian Nursing Council/ State Nursing Council E**xperience** Six years experience in 200 bedded healthcare organization after obtaining Degree or equivalent from a recognized University/Institution Desirable: (i) MSc (Nursing) from a recognized institute / university (ii) Ability to use computers - Hands on experience in office applications, spread sheets and presentations.
5.	Assistant Stores Officer	Between 18-35years	**Qualifications: Essential**: Degree from a recognised University/Institution; (ii) Post-graduate degree/Diploma in Material management from a recognised University/Institution; Or (iii) Bachelor's Degree in Material management from a recognised University/Institution and 3 years' experience in store handling (preferably medical stores).

6.	Blood Transfusion Officer	Between 21-40 years of age	A recognized medical qualification included in I or II Schedule or Pan II of the 3rd Schedule (other than the licentiate qualifications) to the Indian Medical Council Act 1956 Holders of educational qualifications included in Part II of the 34d Schedule should fulfil the conditions stipulated in subsection (3) of the Section 13 of the Indian Medical Council Act. 1956. With 5 years experience in Blood Bank with component separator. Or M.D. in Blood Transfusion Medicine with 1 year experience in Blood Bank with component separator during the PG course
7.	Clinical Psychologist	Between 21-35 years of age	M.A. / M.Sc. in Psychology with M.Phil. in Clinical Psychology And At least 2 years' experience in Clinical Psychology **Desirable:** Ph.D. in Clinical Psychology from recognized University / Institution
8.	Junior Warden (Housekeepers)	Between 30-45 years.	Graduate from a recognised University or equivalent. Two years' experience as a Jr. Warden or equivalent in any College.
9.	Medical Officer AYUSH	Between 21-35 years of age	**Essential:** 1. A degree in relevant stream of AYUSH from a Recognized University/Statutory. State Board/Council/Faculty of Indian Medicine or equivalent recognized under the relevant council. 2. Enrolment on the Central Register of that stream in Central or State Register of Indian Medicine. 3. Experience.3 years clinical and/or teaching experience in a recognized hospital/teaching institution. **Desirable**: A postgraduate degree in relevant stream of AYUSH from a Recognized University/Statutory/State/Board/Council/Faculty of Indian Medicine.
10.	Medical Physicist	Between 21-35 years of age	**Educational Qualifications:** M.Sc. in Medical Physics or equivalent from a recognized University/Institution i) M.Sc. in Physics from a recognized University (ii) A Post-Graduated diploma/degree in Radiological Medical Physics from a recognized University/1nstitute. OR M.Sc. in Medical Technology with Radiotherapy as special subject from a recognized University and/or Diploma in Radiation Protection. AND **Experience:** 2 Years experience of working in Radiotherapy Department of a Hospital.

11.	Junior Accounts Officer	Between 21 - 30 years	**Essential Qualification**: Graduate in Commerce. Possessing two years' Experience of handling accounts work in Government Organization.
12.	Librarian Grade-III	Between 21-30years.	**Qualifications:** **Essential**: i) Bachelor Degree in Library Science or Library and Information Service from a recognized University/Institute. Or B.Sc. Degree or equivalent from a recognized University and Bachelor Degree or Post Graduate Diploma or equivalent in Library Science from a recognized University or Institute. With 2 years' Professional experience in a library of under Central/ State Autonomous Statutory organization/PSU/University or recognized research and educational institution. Ability to use computers- Hands on experience in office applications, spread sheets and presentations. **Desirable:** Diploma in Computer Application from a recognized University or Institute.
13.	Lower Division Clerk	Between 18-30years of age	**Essential Qualification**: 12th Class or equivalent qualification from a recognized Board or University Skill test norms on computer Typing speed @35w.p.m.in English or 30 w. p. m. in Hindi (Time allowed 10 minutes) (35 w.p.m or 30 w.p.m. correspond to 10500 KDPH /9000 KDPH on an average of 5 key depressions for each word) Desirable 1. Basic Computer literacy.
14.	MedicalRecord Officer	Between 21-35 years of age	Qualifications: **Essential:** Bachelors Degree preferable with Science & Recognized University or Equivalent Should have done one year course in Medical Record from recognized Institution Not less than 5 years of experience in organizing and maintenance of Medical records in a not less than 200 Bedded Medical Hospital/institute
15.	Medico Social Service Officer Grade I	Between 21-35 years of age	Qualifications: **Essential:** MA (Social Work) / MSW, with specialization in Medical Social Work, from a recognized University /Institution And 5 Years of Experience in a government or private sector hospital of minimum 200 beds Desirable: Ability to use computers -Hands on experience in office applications, spread sheets and presentations.
16.	Office Assistant (NS)	Between 21-30 years	1.Degree of recognized University or equivalent 2. Proficiency in computers

17.	Personal Assistant	Between 18-30 years	**Essentials:** Degree from a recognized University. Skill Test Norms: Dictation-l0 Minutes @ 100WPM Transcription-40 Minutes English or 55 Minutes Hindi on a Computer **Desirable:** Diploma/ Certificate in Secretarial Practice from a recognized Institute. Excellent command over Hindi and English (written and spoken)
18.	Physiotherapist	Between 21-30 years	10 + 2 in Science (Physics, Chemistry and Biology) and; Bachelor's Degree in Physiotherapy from a recognized Institute / University 2 year's experience Registered with the Physiotherapy council
19.	Private Secretary	Between 18-30 years	**Essential:** (i) Degree from a recognized University. (ii) Skill Test Norms: Dictation-7 Minutes@ 120WPM Transcriptlon-45 Minutes English or 60 Minutes Hindi on a Computer Desirable: Diploma/ Certificate in Secretarial Practice from a recognized Institute. Excellent command over Hindi and English (written and spoken) Ability to use computers Desirable: Diploma in Secretarial Practice or equivalent.
20.	Junior Engineer (Air Conditioning & Refrigeration)	Age not exceeding 30 years.	Graduate in Electrical/Mechanical . Engineering from a recognized University/ Institute Desirable: 2 years experience in repair and maintenance of large scale Air Conditioning and Refrigeration systems. or Diploma in Electrical /Mechanical Engineering from a recognized University / Institute with 5 years experience in repair and maintenance of large scale Air Conditioning and Refrigeration systems

21.	Junior Engineer (Civil)	Age not exceeding 30 years	Qualifications Essential: Graduate in Civil Engineering from a recognized University/ Institute Desirable**:** 2 Years' experience in design and engineering of civil projects, preferably in a hospital environment. **Or** Diploma in Civil Engineering from a recognized University/ Institute with 5 Years' experience in design and engineering of civil projects, preferably in a hospital environment.
22.	Junior Engineer (Electrical)	Age not exceeding 30 years.	Qualifications Essential: Graduate in Electrical Engineering from a recognized University/ Institute. Desirable: 2 Years' experience in repair and maintenance of electrical systems, preferably in a hospital environment. **Or** Diploma in Electrical Engineering from a recognized University/ Institute with 5 Years' experience in repair and maintenance of electrical systems, preferably in a hospital environment.
23.	Junior Hindi Translator	Between 18-30years (Maximum age is relaxable up to 5years for Central Government employees including AIIMS in accordance with the instructions or orders issued by the Central Government)	Master's degree of a recognized University in Hindi with English as a compulsory or elective subject or as the medium of examination at the degree level OR Master's degree of a recognized University In English with Hindi as a compulsory or elective subject or as the medium of examination at the degree level OR Master's degree of a recognized University in any subject other than Hindi or English, with Hindi medium and English as a compulsory or elective subject or as the medium of an examination at the degree level; OR Master's degree of a recognized University in any subject other than Hindi or English, with English medium and Hindi as a compulsory or elective subject or as the medium of a examination at the degree level; OR Master's Degree of a recognized University in any subject other than Hindi or' English, with Hindi and English as compulsory or elective subjects or either of the two as a medium of examination and the other as a compulsory or elective subject at

			degree level and Recognized Diploma or Certificate course in translation from Hindi to English & vice versa or two years' experience of translation work from Hindi to English and vice versa in Central or State Government office, including Government of India Undertaking.,
24.	Junior Medical Record Officer	21-35 Years	**Essential Qualification**: B.Sc. (Medical Records) Or 10+2(Science) from a recognised board with at least 6 month Diploma/Certificate course in Medical Record Keeping from a recognized institute / University having 2 years' experience in Medical Record Keeping in a Hospital Setup And Ability to use' computers Hands on experience in office applications, spread sheets and presentations. Typing speed of 35 words per minute in English or 30 words per minute in Hindi.

25.	Speech Therapist /Technical Assistant ENT	Between 21-30 years of age	**Essential:** B.Sc. Degree in Speech and Hearing from a recognized Institution / University. Desirable: (i) M.Sc. in Speech and Hearing (ii) Clinical experience in a hospital in the field
26.	Technician (Laboratory)	Between 25-30 Years	**Qualifications:** **Essential**: a) B. SC. In Medical Lab Technology or equivalent. b) 5Years experience in the concerned field or c) Diploma in Medical Lab Technology or equivalent. d) 8 Years experience in the concerned field or e) For posts in Anesthesia/ Operation Theatre, B.Sc. in OT techniques or equivalent with 5 years experience in concerned field. f) 10+2 with science with Diploma in OT techniques or equivalent with 8 years . experience in concerned field

27.	Security cum Fire Jamadar	Between 18-27 years.	ESSENTIAL (i) 10 + 2 from a recognised Board / University; (Relaxable upto Class 10 In the case of Ex-Servicemen who have excellent record and have passed third class examination of the Services) (ii) Following Physical Standards: a_ Height: 167 cm and Chest: 80 cm with an expansion of 5 cm (For residents of hill areas height may be 162 cm, chest - 76 cm with an expansion of 5 cm) b. Should possess sound health free from defect/ deformity/disease. c. Vision in both eyes should be 6/12 (without glasses). d. There should be no colour blindness. (Candidates claiming relaxation in height and chest will have to produce the certificate to this effect from the competent authority viz., Deputy Commissioner/ Distt. Magistrates/Tehsildars of their places of residence). Note: The standards of Physical Efficiency test may be relaxed by the Director (AIIMS) in the case of Ex-Servicemen only. Desirable (I) Service In the Armed Forces/ Para- Military Forces/ Police. (ii) Experience of performing security duties, preferably in a hospital of repute.
28.	Stenographer	Between 18-27 years.	Essential: (11th Class or equivalent qualification from a recognized Board or University (ii) Skill Test Norms: Dictation- 10 Minutes @ 80WPM Transcription- 50 Minutes English or65MinutesHindion -a Computer Desirable: Excellent command over Hindi and English (written and spoken)
29.	Store Keeper	Between 18 - 35 years	Essential Qualification: I. Graduate· from a recognized university with one-year experience in handling stores. II. Post-graduate Degree/Diploma in Materials Management from a recognized Institution. Or Bachelor's Degree in Materials Management from recognized Institution and minimum 3 years of

			Experience in store Handling (Preferably Medical Store)
30.	Technical Officer (Dental)/ Dental Technician	Between 21-35 years of age	Essential: 10 + 2with Science from a recognized University/ Board. Diploma (minimum 2 years duration) from a recognized Institution in . Dental Hygiene; or Dental Mechanic; or Maxillo-facial prosthesis and Orthodontic appliances. Registered as Dental Hygienist/ Dental Mechanic with the Dental Council of India. 5 years Experience in the relevant field.
31.	Technical Officer (Technical Supervisor)	Not exceeding 40 years	**Qualification: Essential:** a) B. Sc. In Medical Lab Technology or equivalent. B) 10 Years experience in the concerned field or c) For Post in Anaesthesia/ Operation Theatre, B.Sc. in OT techniques or equivalent with 10 years experience in concerned field. or d) 10+2 with science with Diploma in OT techniques or equivalent with 13 years experience in concerned field
32.	Technical Officer Ophthalmology (Refractionist)	Between 21-35 years of age	**ESSENTIAL** B.5c. in Ophthalmic Techniques or equivalent from a recognised University /Institution with 5 years experience in the relevant field.
33.	Technician Prosthetics or Orthotics	Between 21-30 years of age	Bachelor's degree in Prosthetics & Orthotics from a Institution / University recognised by Rehabilitation Council of India Registration with the Rehabilitation Council of India **Desirable:** 2 years experience in the field

34.	Upper Division Clerk (UDC)	Between 21-30 years:	1. Degree of recognized University or equivalent 2. Proficiency in computers. 3. Skill test norm: Same as that of Lower Division Clerk.
35.	Warden (Hostel Warden)	Between 30-45 Years	**Qualifications:** 1. Graduate from recognized University/ Institute 2. Diploma/ Certificate in House 2 Posts reserved Keeping/ Material Management/ for women Public Relations/ Estate candidates for Management. Possessing two years' Experience of handling hostels in Government/ Reputed Organization,
36.	Yoga Instructor	Between 21-35 years of age	1. Graduate from a recognized University with. Diploma in Yoga from a recognized Institution by the Government. or Graduate in Yoga Sciences from a recognized University and 2. Five years experience of teaching and training of yoga in a recognised Institution. Desirable: Experience of Yoga in Orthopedics.
37.	Staff Nurse Grade I (Nursing Sisters)	Between 21-35 years.	**Essential:** (i)B.Sc. Nursing (4 year course) from a recognised , Institute/University. OR B.Sc. (Post-certificate) or equivalent such as B.Sc. Nursing (Post-basic) (2 year course) from a recognised Institute/University. (ii) Should be registered with the Indian Nursing Council/ State Nursing Council Experience Experience -Three years of experience as Staff Nurse Grade -" in a minimum 100 bedded hospital/healthcare Institute. **Desirable:** lability to use computers -Hands on experience in office applications, spread sheets and presentations.

GENERAL CONDITIONS

1. CUT OFF DATE Cut-off date to determine eligibility in terms of age, qualifications and experiences of the candidates will be the last date of submission of online application. The link for submission of online applications in respect of above said posts along with other relevant information will be shortly activated on the Institute website i.e. www.aiimsrajkot.edu.in. The last date of online submission of applications will be 30 days from the date of publication of this advertisement in the Employment news.

1. APPLICATION FEES:

1.1 For un-reserved/OBC candidates fee shall be **Rs.3000/.** For SC/ST/EWS candidates it will be **Rs.1500/.**

Fee exempted for: Persons with benchmark disabilities (refer to DoPT vide letter no. 36035/2/2017 dated 23 August 2019 by Govt. of India.

The candidates can pay the prescribed application fee online by clicking in the link provided in the Institute Website while filling up the Online Application.

1.2 Application fee once remitted shall not be refunded under any circumstances.

1.3 Incomplete application(s) and application received without the prescribed fee would not be considered and summarily rejected. The decision of the Competent Authority of AIIMS, Rajkot in this regard will be final.

2. HOW TO APPLY:

2.1 The applicants applying in response to this advertisement should satisfy themselves regarding their eligibility for the post applied for. They must be fulfilling eligibility criteria as on the cut-off date failing which their application will be rejected. They must possess the requisite educational qualifications and experience as desired and recognized by the Govt. of India. Their candidaturewill be cancelled at any stage if it is found that their Educational qualification or experiences is not fully recognized by the Govt. of India or not meeting the given criteria.

2.2 The aspiring applicants satisfying the eligibility criteria in all respect should apply through ON-LINE application mode. The On-line registration of applications will be made available on the official website of AIIMS, Rajkot i.e. www.aiimsrajkot.edu.in . The notification for date of activation of link for submission of online applications in respect of above said posts along with other relevant information will be subsequently notified on the website.

2.3 Candidates are advised to fill their correct and active e-mail IDs, in the online application

form, asall correspondences will be made by the Institute through e-mail.

2.4 The candidate must ensure that their photo, signature and thumb impression should be clearly visible in preview at the time of online application. If photo/signature/thumb impressionimage is displayed small or not visible in preview on website, that means photo/signature is not as per the AIIMS, Rajkot prescribed guidelines and in that case, their application can be rejected. So, candidates are advised to be very careful while uploading their photo and signatures. Both must be visible clearly on Online Application Form before final submission.

2.5 No documents including online application form is required to be sent physically, however, all the applicants are advised to keep a hard copy of online application forms with them along with proof of payment (a copy of challan /online payment receipt) for their records.

2.6 In case a candidate wishes to apply for more than one post, he/she is required to fill in the requisite form separately through the Online mode and separate application fees as applicable will also be required to be paid.

3. Test Centres: Computer Based Test (CBT) is likely to be held at the below mentioned cities. Candidates must indicate their preferences in the order of priority in online application form from where they desire to take the CBT. The Institute reserves the right to change the centres and the candidates will be informed well in time. The Institute reserves the right to cancel any of the Centres on ground of less number of candidates or any other ground and ask candidates of that centre to appear from another centre/city. No request for change of examination/CBT centre once allotted will be entertained, Candidates will have to appear at the allotted center & at his/her own arrangement and expenses. Tentative test Centre/city for CBT is given under: -

1. Rajkot	2. Ahmedabad	3. Noida/Delhi	4. Mumbai

4. e-Admit Cards for CBT: Candidates shall be issued an e-Admit Card for appearing in CBT. The e-Admit Card will be made available on the website of AIIMS Rajkot for downloading by candidates after the completion of the Registration process deadline. 'Admit Card' will **not** be sent to candidates by any other mode. In case of any discrepancies/errors in e-Admit Card, candidates must immediately report the same to the Recruitment Cell, AIIMS Rajkot for correction. (aiims.rajkot.recruitment@gmail.com)

5. AGE RELAXATION:

S. No.	**Category**	**Age Relaxation permissible beyond the Upper Age Limit**
1.	**SC/ST**	5 years
2	**OBC**	3years
3.	**PwBD**	10 years, subject to the condition that maximum age of the applicant on the crucial date shall not exceed 56 years.

4.	**Ex-Servicemen and Commission Officers including ECOs/SSCOs for Group B posts**	(a) Five years' subject to the condition that on the closing date for receipt of applications the continuous service rendered in the Armed Forces by an Ex- Serviceman is not less than six months after attestation. This relaxation is also available to ECOs/SSCOs who have completed their initial period of assignment of five years of Military Service and whose assignment has been extended beyond five years as on closing date and in whose case the Ministry of Defence issues certificates that they will be released within 3 months on selection from the date of receipt of offer of appointment. Candidates claiming age relaxation under this para would be required to produce a certificate in the prescribed proforma. **NOTE**: Ex Servicemen who have already secured regular employment under the Central Govt. in a Civil Post are permitted the benefit of age relaxation as admissible for Ex-Servicemen for securing another employment in any higher post or service under the Central Govt. However, such candidates will not be eligible for the benefit of reservation, if any for Ex-Servicemen in Central Govt. jobs.
		In order to qualify for the concession under (a) above, candidates concerned would be required to produce a certificate that they have been released from the Defence Forces. The certificate for Ex-Servicemen and Commissioned Officers including ECOs/SSCOs should be signed by the appropriate authorities specified below and should also specify the period of service in the Defense Forces: - (i) In case of Commissioned Officers including ECOs/SSCOs: Army: Directorate of Personnel Services, Army Headquarters, New Delhi. Navy: Directorate of Personnel Services Naval Headquarters, New Delhi. Air Force: Directorate of Personnel Services, Air Headquarters, New Delhi. (ii) In case of JCOs/ORs and equivalent of the Navy and Air Forces: **Army:** By various Regimental Record Offices. **Navy:** Naval Records, Bombay **Air Force**: Air Force Records, New Delhi.
5.	**Ex-Servicemen-for Group C posts**	
	1) Ex-Servicemen (Unreserved)	03 years after deduction of the Military service rendered fromthe actual age as on the closing date for receipt of application
	2) Ex-Servicemen(OBC)	06 years (3 years + 3 years) after deduction of the Military service rendered from the actual age as on the closing date for receipt of application.
	3) Ex-Servicemen (SC & ST)	08 years (3 years + 5 years) after deduction of the Military service rendered from the actual age as on the closing date for receipt of application

6.	**Central Govt. Civilian Employees - for Group B posts**	
	1) Central Govt. Civilian Employees (General/Unreserved) who have rendered not less than 3years regular and continuous service as on closing date for receipt of application	5 years
	2) Central Govt. Civilian Employees (OBC) who have rendered not less than 3 years regular and continuous service as on closing date for receipt of Application	8 (5 +3) years
	3) Central Govt. Civilian Employees (SC/ST) who have rendered not less than 3 years regular and continuous service as on closing date for receipt of applications	10 (5+5) years
7.	**Central Govt. Civilian Employees - for Group C posts**	
	1) Central Govt. Civilian Employees (General/Unreserved) who have rendered not lessthan 3 years regular and continuous service as on closing date for receipt of application.	Upto 40 years ofage
	2) Central Govt. Civilian Employees (SC/ST) who have rendered not less than 3 years regular and continuous service as on closing date for receipt of application	Upto 45 years of age
For Group C Posts		
8.	Candidates who had ordinarily been domiciled in the State of Jammu & Kashmir (Unreserved/General)	5 years
9.	Candidates who had ordinarily been domiciled in the State of Jammu & Kashmir(OBC)	8 years
10.	Candidates who had ordinarily been domiciled in the State of Jammu & Kashmir SC/ST)	10 years
11.	Widows/Divorced Women/Women judicially separated and who are not remarried (Unreserved/General)	Upto 35 years of age
12.	Widows/Divorced Women/Women judicially separated and who are not remarried (OBC)	Upto 38 years of age
13.	Widows/Divorced Women/Women judicially separated and who are not remarried (SC/ST)	Upto 40 years of age
14.	Defence Personnel disabled in operation during hostilities with any foreign country or in a disturbed area and released as a consequence thereof. (Unreserved/General)	5 years
15.	Defence Personnel disabled in operation during hostilities with any foreign country or in a disturbed area and released as a consequence thereof. (OBC)	8 (5+3) years
16.	Defence Personnel disabled in operation during hostilities with any foreign country or in a disturbed area and released as a consequence thereof (SC/ST)	10 (5+5) years
17.	Service Clerks in the last year of their colour service in the Armed Forces (Unreserved/General)	Upto 45 years of age
18.	Service Clerks in the last year of their colour service in the Armed Forces (OBC)	Upto 48 years of age
19.	Service Clerks in the last year of their colour service in the Armed Forces (SC/ST)	Upto 50 years of age

Explanation : An 'Ex-serviceman' means a person-

- who has served in any rank whether as a combatant or non-combatant in the Regular Army, Navy and Air Force of the India Union, and
- who either has been retired or relieved or discharged from such service whether at his own request or being relieved by the employer after earning his or her pension; or
- who has been relieved from such service on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension; or
- who has been released from such service as a result of reduction in establishment; or
- who has been released from such service after completing the specific period of engagement, otherwise than at his own request, or by way of dismissal, or discharge on account of misconduct or inefficiency and has been given a gratuity; and includes personnel of the Territorial Army, namely, pension holders for continuous embodied service or broken spells of qualifying service; or
- Personnel of the Army Postal Service who are part of Regular Army and retired from the Army Postal Service without reversion to their parent service with pension, or are released from the Army Postal service on medical grounds attributable to or aggravated by military service or circumstance beyond their control and awarded medical or other disability pension; or
- Personnel, who were on deputation in Army Postal Service for more than six months prior to the 14th April, 1988; or
- Gallantry award winners of the Armed forces including personnel of Territorial Army;
- Ex-recruits boarded out or relieved on medical ground and granted medical disability pension

NOTE-I: Ex-servicemen who have already secured employment in civil side under Central Government on regular basis after availing of the benefits of reservation given to ex- servicemen for their re-employment are NOT eligible for claiming benefits of reservation under EXS category. However, they are eligible for age relaxation as per rules.

NOTE-II: The period of "Call up Service" of an Ex-Serviceman in the Armed Forces shall also be treated as service rendered in the Armed Forces for purpose of age relaxation, as per rules.

NOTE-III: For any serviceman of the three Armed Forces of the Union to be treated as Ex-Serviceman for the purpose of securing the benefits of reservation, he must have already acquired, at the relevant time of submitting his application for the Post/Service, the status of ex-serviceman and /or is in a position to establish his acquired entitlement by documentary evidence from the competent authority that he would complete specified term of engagement from the Armed Forces within the stipulated period of one year from the CLOSING DATE FOR RECEIPT OF APPLICATION or otherwise than by way of dismissal or discharge on account of misconduct.

6. Selection Procedure:

(a) For Group 'A' posts:

1. Selection of candidates will be done as per vide circular No. Z-28016/24/2014-SSH of the PMSSY division of Government of Indian Ministry of Health & Welfare. A screening test will be held at AIIMS, Rajkot to shortlist the candidates for the Interview, only if the candidates are in excess of 1:6 for the vacancy.

2. Before interview, verification of documents of shortlisted candidates will be carried out to determine their eligibility in terms of eligibility conditions given in the advertisement. Only eligible candidates will be allowed for the Interview.

(b) For Group 'B' and 'C' posts:

1. Selection will be done on the basis of performance of candidate in CBT in the order of merit subject to qualifying the 'Skill Test' (if applicable) and fulfilling the eligibility criteria by candidates during document verification.

2. The CBT will be of two parts: Part I will be carrying 20% weightage and Part II, 80%. Merit will be prepared on the basis of aggregate marks scored in Part-I and Part-II of CBT.

3. Skill test, if applicable, will be conducted only for shortlisted candidates (in the order of merit to a certain extent with reference to the number of vacancies). It will be qualifying in nature. The date and details of skill test of shortlisted candidates in the ratio 1:6 will be notified on the website of AIIMS Rajkot in due course.

4. Final result will be prepared on the basis of marks scored by candidates in CBT in the order of merit provided that such candidates are also declared eligible during document verification and qualified in Skill Test (if applicable).

(c) **Document Verification**: Original documents of shortlisted candidates in the order of merit (to a certain extent with reference to the number of vacancies) will be verified in due course. The date and details of document verification will be notified on the website of AIIMS Rajkot and individually via e-mail after declaration of result of CBT

(d) **Final Result:** Final result will be prepared as explained in point 6(a) and 6(b) above. The final result (i.e. list of selected candidates) will be published on the website of AIIMS Rajkot.

7. No Objection Certificate (NOC): The applicants, already in Government service (including AIIMS Employees) shall have to upload **"No Objection Certificate"** from their present employer at the time of Online Application. Further, it is mandatory to produce the same NOC at the time of Document Verification and relieving certificate at the time of Joining.

8. Details of Computer Based Test (CBT):

Candidates will have to score a minimum following prescribed marks (as per their category) in the CBT for empanelment in the order of merit:-

Sl. No.	Category	Minimum Qualifying Marks of CBT
1.	UR	40% (for all UR category posts)
2.	OBC-NCL/ EWS	35% (only for posts reserved for them)
3.	SC/ST/ PwBD/ Ex-SM	30% (only for posts reserved for them)

Important note for CBT: The following will be applicable for all the posts:-

(a) There will be **negative marking** of **0.25 mark** for each wronganswer.

(b) Reserved category candidates applying for UR category posts have to qualify the CBT by UR standards for empanelment in the order of merit.

(c) Competent authority may revise the qualifying marks of CBT at its discretion depending upon the requirement of the Institute/availability of candidates for the posts.

(d) PwBD candidates will be eligible for scribes and compensatory time as per the Govt. of India rules on production of valid requisite certificates.

9. Answer Keys of CBT: Answer keys of CBT will be published on the website of AIIMS Rajkot after the CBT. Candidates will be given opportunity to submit representation/objection to the answer key/question, if any **within four days from the date of publication of answer keys.** They can do so with supporting

documents/justification within the stipulated time and ONLY through the designated web- link/web-portal on payment of Rs. 100/- per question. Representation received from any other mode will not be entertained. There shall beno provision for re-evaluation/ re-checking of the scores. The decision of AIIMS Rajkot will be final and binding and no correspondence in this regard shall be entertained.

Result of CBT: Result of CBT will be published on the website of AIIMS Rajkot. **No correspondence shall be entertained in this regard.**

a. **Resolution of Tie Cases**: In the event of tie in scores of candidates in CBT, merit will be decided by applying the following criteria one after another in the order given below till the tie is resolved:-

   i. First by using number of wrong answers: candidate with less wrong answers in CBT will be placed higher in the order of merit.

   ii. By date of birth: older candidate will be placed higher in the order of merit.

   iii. By alphabetical order in which the names of the candidates appear.

10. Important Note for Candidates:

a. The portal/link for online application for these posts will be available on the website of AIIMS Rajkot(www.aiimsrajkot.edu.in) as per the following schedule:-

Opening Date of Online Application	Closing Date of Online Application
Frequently visit AIIMS Rajkot website For latest updates	30 days from the date of publication of this advertisement in the Employment news

b. Age relaxation and/or reservation shall be admissible to SC/ST/OBC candidates only against the **vacancies reservedfor them** on submission of valid caste/category certificate. The caste/community of such candidate should be included in the list of reserved communities issued by the Central Government.

c. The vacancies are being advertised in financial year 2023-2024, therefore, NCL-OBC/EWS certificate in prescribed format for employment in Central Government, issued during the period from 01.04.2023 to 31.03.2024 will be considered valid.

d. Reserve category candidates who are selected on their own merit without any relaxed standards will be accommodated against the unreserved vacancies as per their position in the order of merit. Reserved vacancies will be filled up from amongst the eligible relevant reserved category candidates in the order of merit.

e. Reserved category candidates who qualify on the basis of relaxed standards viz. age limit, experience, qualifications, etc.,will be counted against reserved vacancies only irrespective of their merit position.

f. A person with benchmark disability (PwBD) who is selected on his own merit can be appointed against an unreserved vacancy provided the post is identified suitable for persons with benchmark disability (PwBD) of relevant category.

g. The Institute will consider the suitability of posts for various benchmark disabilities under the Rights of Persons with Disabilities (RPwD) Act, 2016 in accordance with Notification No. 38-16/2020-DD-III dated 04.01.2021 issued by the Ministry of Social Justice and Empowerment, Govt. of India or as identified by the Institute considering the functional/physical requirements of the post. Benefit under the PwBD category will be admissible to only those who suffer from not less than 40% of specified disability. Such PwBD candidates have to submit a Disability Certificate issued by the competent authority in the prescribed format. The Institute will decide the placement of selected candidates in the roster register.

h. The Institute may verify the authenticity of the certificate of disability and examine suitability of the PwBD candidate in terms of functional requirements before appointment. In this regard, the decision of the Institute will be final.

i. A Matriculate Ex-Serviceman (non-graduate Ex-Serviceman, who has obtained the Indian Army Special Certificate of education or corresponding certificate in the Navy or the Air Force), who has put in not less than 15 years of service with the Armed Forces of the Union shall be considered eligible for appointment to the reserved vacancies for Ex-SM in Group 'C' posts.

j. Request for change of category i.e. reserved to unreserved or vice-versa will not be entertained. In cases of enlisting a particular community in the list of any of the reserved communities by the Govt. of India not more than 3 months before the submission of application, the request of change of category from Unreserved to Reserved may be considered by the Institute on merit.

k. In case of a candidate unfortunately becoming a candidate belonging to Person with Benchmark Disability during the course of the examination process, the candidate should produce valid document of acquiring a disability to the extent of 40% or more as defined under the RPwD Act, 2016 to enable drawingthe benefits of reservation/relaxation as available to the Persons with Benchmark Disability.

10.General Instructions to Candidates:

1. On appointment, in addition to pay, selected candidates will be entitled to other allowances and service benefits i.e. DA, HRA (or accommodation), TA, Leave, LTC, NPS, Employee Health Scheme etc. as admissible to employees of AIIMS Rajkot as per CCP/CCS rules.

2. All the appointees are expected to conform to the rules of conduct and discipline as applicable to the employees of AIIMS Rajkot.

3. Without prejudice to criminal/legal/disciplinary action, the candidate is liable to be disqualified from the CBT/recruitment process on account of the following: -

    i. Using unfair means during the CBT/recruitment process; or
    ii. Violating instructions mentioned in the e-Admit Card or given by officials; or
    iii. Impersonating or procuring impersonation by any person; or
    iv. Misbehaving in the examination hall / place of Document Verification (DV); or
    v. Damaging infrastructure/equipment in the examination hall/place of DV; or

vi. Obstructing the conduct of examination/recruitment process; or
vii. Instigating other candidates to boycott the examination / DV process; or
viii. Making statements which are incorrect or false, suppressing material information, submitting fabricated documents, etc. or
ix. Any other inappropriate and undisciplined behavior during the process.

4. In case, any information or declaration given by the candidate is found to be false or if the candidate has willfully suppressed any material information relevant to this recruitment, he/she will be liable to be removed from the service and/or action, as deemed fit, may be taken against him/her by the appointingauthority.

5. The candidate should not have been convicted by any Court of Law.

6. Candidates should note that their candidature will remain provisional till the veracity of the document submitted by them is verified by AIIMS Rajkot.

7. In case of any inadvertent mistake in the process of selection which may be detected at any stage even after the issue of appointment letter, the Institute reserves the right to modify/withdraw any communication made to the candidate.

8. The Executive Director, AIIMS Rajkot reserves the right of any amendment, cancellation, and changes to this advertisement including increase/decrease in number of seats as a whole or in part without assigning any reason.

9. No TA/DA will be paid for appearing in the recruitment process/test/interview.

10. Candidates may use Hindi or English language in the selection process except for the test of language which will be in the concerned language only.

11. Communication with candidates regarding recruitment process will be made through email IDs only provided by them in their online application forms.

12. Any corrigendum or revision of the advertisement or any otherinformation regarding this recruitment will be posted on the Official website of AIIMS, Rajkot only in due course. Candidates are advised to visit our website regularly for the updated information in this regard.

13. Any dispute in regard to this recruitment will be subject to the Court/Tribunal having jurisdiction over Rajkot/Gujarat only

14. Contact aiims.rajkot.recruitment@gmail.com (Only For Online Application Form Related Query)

Sd/-xxx
Executive Director
AIIMS, Rajkot

Indicative syllabus for the Advertised cadres/posts is enumerated hereunder:

1. **Group 'A' posts**: In case a screening test is to be conducted depending upon the number of candidates exceeding the ratio of 1:6 for a post, the syllabus will be based on the concerned professional domain knowledge & skills.

2. **Group 'B' & 'C' posts: Please Refer below-**

1. SYLLABUS FOR THE POST OF ASSISTANT ADMINISTRATIVE OFFICER

A. General Intelligence & Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (10 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into

Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (10 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Central Govt. Service Rules (80 Marks):

Central Government Rules: Questions relating to CCS (Leave) Rule, CCS (Conduct) Rules, GFR, FR/SR, General Service Condition, Office Procedures, Types of correspondence, General Knowledge about IPC/CRPC, CPC/CAT/High Court, RTI Act, 2005, Establishment, Reservation, Roster, LTC, Travelling Allowance etc.

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2. SYLLABUS FOR ASSISTANT LAUNDRY SUPERVISOR

A. General Intelligence & Reasoning (15 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (15 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (15 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear

Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (15 Marks):

Candidates' understanding of the Basics of English Language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. his/her writing ability would be tested.

E. Subject Knowledge (40 Marks):

- On and Off Premise Laundry, advantages and disadvantages
- Flow process chart in laundry
- Stages in the laundry process
- Laundry equipment
- Location, layout and planning of laundry
- Stain removal: agents and method
- Alternative laundry procedures
- Disinfection
- Blood and Human Secretion related infection

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3. SYLLABUS FOR THE POST OF DIETICIAN

Subject Knowledge (100 Marks)

A. Human Physiology (10 Marks):

General principles of Physiology

The Skeleton – General Account

- The Muscular System – General Account -Types of muscles, characteristics of each, Similarities and Differences.
- Blood and Circulatory System – Blood and its composition, Functions of each constituent of blood, Blood groups, Blood transfusion and its importance, Coagulation of blood, Blood vessels, Structure and functions of heart, Blood pressure, heart rate, Cardiac output and their regulation.
- Lymphatic System – Lymph, Lymph glands and functions, Spleen – Structure and Functions.
- Respiratory System – Organs, Structure and Functions, Mechanism of Respiration, Chemical Respiration.
- Digestive System – Structure and Functions of Alimentary tract. Functions of various secretions and juices – Saliva, Gastric, Bile, Intestinal, Pancreatic. Functions of enzymes in digestion. Digestion of nutrients – Proteins, Fats, Carbohydrates. Common problems of Digestive tract – Vomiting, Constipation, Diarrhea.

- Excretory System – Structure and Functions of (a) Kidney (b) Ureter (c) Bladder (d) Skin. Urine -Formation of urine, Composition of normal and abnormal urine. Role of excretory system in homeostasis, fluid balance, Regulation of body temperature.
- Nervous System – Structure of Nerve Cell, Fibre, Classification of Nervous System, Central Nervous System – Brain, Lobes of brain, Cerebrum, Cerebellum, Medulla oblongata, Hypothalamus. Pituitary Gland – structure, Functions, Spinal Cord – structure and functions, Autonomic and Sympathetic nervous system.
- Reproductive System – Female reproductive system – organs, structure and functions Male reproductive system– structure and functions, Menstruation, menstrual cycle, Puberty, Menarche, Menopause, Fertilization of ovum, Conception, Implantation
- Sense Organs – Eye – structure and function, Ear – structure and function, Skin -structure and function
- Glands and Endocrine System – o Liver – structure and function o Gall Bladder – structure and function o Enterohepatic circulation o Pancreas – structure and function o Endocrine system o Endocrine glands – structure and function. Hormone – types and functions, role in metabolism.
- Endocrine disorders o Regulation of Hormone Secretion

B. <u>Biochemistry (10 Marks):</u>

- Introduction to Biochemistry – Significance of pH, Acid-Base Balance, Cell Structure, Composition, Organelles, Membrane and Function Alterations and Significance.
- Carbohydrates – Structure and properties of Mono-saccharides, Disaccharides, Poly-saccharides. Study of intermediary metabolism of carbohydrates, Glycolysis, Aerobic, Anaerobic, Tricarboxylic acid cycle, Significance of TCA cycle integrating metabolism of carbohydrates protein and lipid, Gluconeogenesis, Glycogenesis, Glycogenolysis, Hexose monophosphate shunt.
- Proteins – Structure, composition Classification and Function, Structure of important proteins with special reference to Insulin, myoglobin, and hemoglobin, Binding proteins and their functions – nutritional implications, Chemistry of amino acids, Metabolism of Proteins and amino acids – Build up of amino acid pool. Urea Cycle, Creatinine and Creatine Synthesis, Biochemical parameters and alterations in disease states and Protein malnutrition, Pregnancy, Inborn errors of metabolism.
- Lipids – Definition, Composition, Classification, Structure and Properties, Lipoproteins, Metabolism of Lipids, Oxidation of fatty acids, Unsaturated fatty acids, Metabolism of ketone bodies, Biosynthesis of fatty acids, Phosphoglycerides, Biosynthesis of cholesterol and regulation, Bile acids and their metabolism, Plasma lipoproteins – Synthesis and Metabolism, Biochemical profile, alterations and significance, Prostaglandins.
- Enzymes – Definition, Classification specificity of enzymes -Intracellular distribution, kinetics, inhibition, Factors affecting enzyme activity, Enzymes in clinical diagnosis.
- Nucleic Acids – Composition, Functions, Classification, Structure and properties of DNA and RNA, Replication and transcription of genetic information, Mechanics of DNA replication, transcription, translation, Genetic code – Protein biosynthesis, Regulation of biosynthesis recombinant DNA Technology. Breakdown of purine and pyrimidine nucleotides.
- Biological Oxidation, Electron Transport Chain, Oxidative Phosphorylation.
- Hormones– Mode of Action, Regulation of Metabolism Biochemical parameters. Endocrinological abnormalities and clinical diagnosis.

C. Food Microbiology, Sanitation And Hygiene (10 Marks):

- Introduction to Microbiology – Mold, Yeast, Bacteria, Viruses, Protozoa, General Classification Family, Genus, Species. Study of their morphology, cultural characteristics and biochemical activities. Important microorganisms in foods, general.
- Growth curve of a typical bacterial cell – Effect of intrinsic and extrinsic factors on growth of organisms, pH, water activity, 0- R potential, nutritional requirements, temperature, relative humidity and gaseous environment.
- Primary sources of micro-organisms in foods – Physical and chemical methods used in the destruction of micro-organisms, pasteurization, sterilization.
- Fundamentals of control of micro- organisms in foods – Extrinsic and intrinsic parameters affecting growth and survival of organisms. Use of high and low temperature, controlling moisture as water content, freezing, freezing-drying, irradiation, and use of preservatives in food. Storage of food correct handling and techniques of correct storage, Temperatures at which growth is retarded and bacteria are killed, Storage temperatures for different commodities to prevent growth or contamination and spoilage.
- Food spoilage and contamination indifferent kinds of foods and their prevention – Cereal and cereal products, pulses and legumes, Vegetables and fruits, Meat and meat products, Eggs and poultry, Milk and milk products.
- Public health hazards due to contaminated foods – Food poisoning and infections -Causative agents, symptoms, sources and mode of transmission, foods involved, Method of prevention, Fungal toxins, Investigation and detection of food-borne disease outbreak.
- Microbes used in biotechnology – Useful micro-organisms, Fermented foods – raw material used, organisms and the product obtained, Benefits of fermentation.
- Indices of food, milk and water sanitary quality. Microbiological criteria of food, water and milk testing. Food standards, PFA, FPO, BNS, MPO, Agmark, Codex Alimentarius.
- Hygiene and its importance and application – Personal hygiene – care of skin, hair, hands, feet, teeth, Use of cosmetics and jewellery, Grooming, Uniform, Evaluation of personal hygiene, Training staff.
- Safe handling of food – Control measures to prevent food borne diseases and precautions to be taken by food handlers. Reporting of cold, sickness, boils, septic wounds etc.
- Rodents and Insects as carriers of food-borne diseases. Control techniques.

- Disinfectants, sanitizers, antiseptic and germicide. Common disinfectants used on working surfaces, kitchen equipment, dish washing, hand washing etc. Care of premises and equipment, cleaning of equipment and personal tools immediately after use, use of hot water in the washing process.
- Waste disposal, collection, storage and proper disposal from the premises.
- Legal administration and quality control, laws relating to food hygiene.

D. Human Nutrition and Meal Management (10 Marks):

- Concept and Definition of terms – Nutrition, Malnutrition, Health, Brief history of Nutritional Science.

  Scope of Nutrition.
  Minimum Nutritional Requirements and RDA. Formulation of RDA and Dietary Guidelines – Reference Man and Reference Woman.
- Body Composition and Changes through the Life Cycle.
- Energy in Human Nutrition – Energy Balance, Assessment of Energy Requirements.
- Proteins – Protein Quality (BV, PER, NPU), Digestion and Absorption, Factors affecting protein bio-availability including Anti nutritional factors.
- Requirements.
- Lipids – Digestion and Absorption, Intestinal resynthesis of triglycerides – Types of fatty acids, Role and nutritional significance (SFA, MUFA, PUFA, W-3)

- Carbohydrates– Digestion and Absorption. Blood glucose and Effects of different carbohydrates on blood glucose, glycaemic index.
- Dietary Fibre – Classification, Composition, Properties and Nutritional status significance.
- Minerals and Trace Elements – Physiological role, Bioavailability and Requirements.
- Vitamins– Physiological role, Bioavailability and Requirements.
- Water – Functions, Requirements.
- Nutritional requirements for different age groups with rationale. Factors affecting these requirements.
- Effect of cooking and home processing on digestibility and nutritive value of foods.

E. <u>Community Nutrition (10 Marks):</u>

- Improving nutritional value through different methods – germination, fermentation, combination of foods.
- Basic principles of meal planning.
- Nutritional considerations for planning meals for Adults – male and female, different levels of physical activity.
- Pregnancy and Lactation
- Feeding of young children 0 -3 years
- Old age
- Athletes
- Nutritional considerations in brief for the following: Military, naval perso$_{nnel}$
- Astronauts and food for space travel• Emergencies such as drought, famine, floods etc.
- Concept and Scope of Community Nutrition.
- Food availability and factors affecting food availability and intake.
- Agricultural production, post-harvest handling (storage & treatment), marketing and distribution, industrialization, population, economic, regional and socio-cultural factors. Strategies for augmenting food production.
- Assessment of Nutritional status – meaning, need, objectives and importance. Use of clinical signs, anthropometry, biochemical tests, and biophysical methods. Assessment of food and nutrient intake through recall, record, weighment. Food security and adequacy of diets.
- Use of other sources of information for assessment.
- Sources of relevant statistics.
- Infant, child and maternal mortality rates.
- Epidemiology of nutritionally related diseases.
- Nutritional problems of communities and implications for public health. Common Nutritional Problems in India. Incidence – National, Regional.
- Causes: Nutritional and Non Nutritional signs, symptoms, effect of deficiency and treatment
- PEM
- Micronutrient Deficiencies Fluorosis o Correction/Improvements in Diets 6. Schemes and Programs in India to combat Nutritional Problems in India. Role of International, National and Voluntary agencies and Government departments.
- Hazards to Community Health and Nutritional status
    - Adulteration in food
    - Pollution of water, air
    - Waste management
    - Industrial effluents, sewage
    - Pesticide residue in food
    - Toxins present in food – my cotoxins etc.

- Nutrition Policy of India and Plan of Action.
- Health and Nutrition Education – Steps in planning, implementation, and evaluations. Use of educational aids – visual, audio, audio-visual, traditional media etc.

F. <u>Diet Therapy (30 Marks):</u>

- Diet Therapy and Nutritional Care in Disease
  (i) The Nutritional Care Process
  (ii) Nutritional Care Plan
  (iii) Assessment and Therapy in Patient Care
  (iv) Implementation of Nutritional Care
- Nutritional Intervention–Diet Modifications
  (i) Adequate normal diet as a basis for therapeutic diets
  (ii) Diet Prescription
  (iii) Modification of Normal Diet
  (iv) Nomenclature of Diet Adequacy of Standard Hospital Diets
  (v) Psychological factors in feeding the sick person
- Interactions between Drugs, Food Nutrients and Nutritional Status
- Effect of drugs on Food and Intake, Nutrient Absorption, Metabolism, and Requirements.
  (i) Drugs affecting intake of food and nutrients
  (ii) Absorption
  (iii) Metabolism and excretion
  (iv) Nutritional status
  (v) Summary of action of some common drugs
  (vi) Effect of food, nutrients and nutritional status on absorption and metabolism of drugs
- Disease of the G. I. System – Nutritional Assessment
- Pathogenesis of G.I. Disease with special reference to upper G. I. Tract and ulcers.
- Diseases of esophagus and dietary care
- Diseases of stomach and dietary care
- Gastric and duodenal ulcers
- Predisposing factors and Treatment
- Brief medical therapy, rest, antacids, other drugs and dietary care
- Food acidity, foods that cause flatulence, factors that damage G. I. Mucosa
- Foods stimulating G. I. Secretion
- Diet and Eating Pattern
- Diet Recommendations
- Liberal Approach Vs Traditional Approach
- Possible nutritional and dietary inadequacies
- Gastrostomy
- Intestinal Diseases
- Flatulence, Constipation, Irritable Bowel, Haemorrhoids,. Diarrhoea, Steatorrhoea, Diverticular disease, Inflammatory Bowel Disease, Ulcerative Colitis.
- Treatment and Dietary Care in the above mentioned conditions.
- Malabsorption Syndrome
- Celiac Sprue, Tropical Sprue
- Intestinal Brush border deficiencies (Acquired Disaccharide Intolerance)
- Protein Losing Enteropathy
- Dietary Care Process
- Diet in Diseases of the Liver, Pancreas and Biliary System
- Nutritional care in Liver disease in the context of results of specific Liver Function Tests.
- Dietary Care & Management in Viral Hepatitis, Cirrhosis of Liver, Hepatic Encephalophathy, Wilson's disease.

- Dietary care and management in diseases of Gall Bladder and Pancreas.
- Biliary Dyskinesia, Cholelithiasis, Cholecystitis, Cholecystectomy, Pancreatitis, Zollinger- Ellison Syndrome.
- Diet in Disease of the Endocrine Pancreas Diabetes Mellitus and Hypoglycaemia Classification
- Physiological symptoms and disturbances, diagnosis (FBG and OGTT)
- Management of Diabetes Mellitus
- Clinical Vs Chemical control
- Hormonal Therapy
- Oral Hypoglycemic Agents
- Home Glucose Monitoring
- Glycosylated Hemoglobin
- Urine Testing
- Exercise
- Dietary care and Nutritional Therapy – The Diet Plan, Meal planning with and without Insulin, Special Dietetic Foods, Sweeteners and Sugar Substitutes
- Diabetes in Pregnancy, Elderly, Surgery, Diabetic diets in Emergency, Illness, Diabetic coma, Insulin reaction, Juvenile diabetes, Patient Education in Diabetes
- Hypoglycaemia -classification, symptoms, fasting state hypoglycaemia, Postprandial or reactive hypoglycaemia, Early alimentary and late reactive hypoglycaemia, Idiopathic hypoglycaemia, Dietary treatment in reactive hypoglycaemia.
- Dietary care in diseases of the Adrenal Cortex, Thyroid gland and Parathyroid gland.
- Functions of the gland and hormones and their insufficiency, metabolic implications, clinical symptoms.
- Dietary treatment as supportive toother forms of therapy
- Adrenal cortex insufficiency, Hyper and Hypothyroidism (goitre), Hypoglycaemia.
- Nutritional care for Weight Management
- Regulation of energy intake and balance of body weight
- Control of appetite and food intake–
  - Neural control, hormonal control, insulin, estrogen and other peptides and hormones.
- Identifying the obese
- Types of obesity, Health risks
- Causes, Psychology of obesity, Theories of obesity, Physiology of the obese state
- Thermogenesis, Thyroid hormones
- Treatment of Obesity
- Diets in Obesity – Starvation, Fasting
- Evaluation of some common diets, Protein-sparing modified fast, High protein diets
- Balanced Energy Reduction
- Foods to include, fibre foods allowed as desired, alcohol, snacks and beverages
- Psychology of weight reduction

- Behavioural Modification–
  - Psychotherapy, pharmacology, exercise & physical activity, Surgery, prevention of weight gain & obesity.
- Underweight– Etiology and Assessment, High calorie diets for weight gain, Diet plan, Suggestions for increasing calories in the diet, Anorexia Nervosa and Bulimia
- Diseases of the Circulatory System
  - Atherosclerosis – Etiology, risk factors, diet
  - Hyperlipidemias
  - Brief review of Lipoproteins and their metabolism
  - Clinical and nutritional aspects of Hyperlipidemias
  - Classification and Dietary care of Hyperlipidemias
  - Nutritional care in Cardiovascular disease
- Ischemic heart disease Pathogenesis of sodium and water retention in Congestive Heart Disease. Acute and Chronic Cardiac Disease, Acute

- Stimulants, food & consistency, Chronic – Compensated and decompensated states, Sodium Restriction in Cardiac Diseases, Diet in Hypertension – Etiology, Prevalence, Renin-
- Angiotensin mechanism, Salt and Blood pressure, Drugs and Hypertension, Cerebrovascular diseases and diet in brief)
- Anemia
- Resulting from Acute Haemorrhage
- Nutritional anaemia
- Sickle cell anaemia
- Thalassemia
- Pathogenesis and dietary management in the above conditions
- Renal Disease
- Physiology & function of normal kidney – a brief review
- Diseases of the kidney, classification
- Glomerulo nephritis – Acute and Chronic– Etiology, Characteristics, Objectives, Principles of Dietary
- Treatment and Management
- Nephrotic syndrome – objectives, principles of Dietary Treatment and Management.
- Uremia and Renal Failure
- History, General Principles of Protein
- Nutrition in Renal Failure and Uremia.
- Acute Renal Failure– Causes, dietary management fluid, sodium and potassium balance, protein and energy requirements
- Chronic renal failure medical treatment, Renal transplants. Dialysis and types haemodialysis, Peritoneal Dialysis & Continuous Ambulatory Peritoneal Dialysis (CAPD). Dietary Management in conservative treatment, dialysis and after renal transplantation.
- Use of Sodium and Potassium
- Exchange lists in Renal (diet planning). Chronic renal failure in patients with diabetes mellitus
- Chronic renal failure in children
- Nephrolithiasis – Etiology, types of stones, Nutritional care, alkaline-ash diets
- Allergy
- Definitions, symptoms, mechanism of food allergy
- Diagnosis– History, Food record
- Biochemical and Immunotesting (Brief)
- Elimination diets
- Food selection Medications (brief)
- Prognosis food Allergy in infancy
- Milk sensitive enteropathy; Colic, Intolerance to breast milk, prevention of Food Allergy.
- Diseases of Nervous System, Behavioural Disorders and Muscular Skeletal System
- Neuritis and polyneuritis
- Migraine, headache
- Epilepsy
- Multiple sclerosis
- Hyperkinetic Behaviour Syndrome Orthomolecular psychiatry and mental illness (Brief) Definition, etiology, dietary treatment and prognosis in the above conditions.
- Arthritis– Rheumatoid Arthritis, Osteoarthritis, Symptoms, dietary management
- Nutrition in Cancer- Types, symptoms, detection
- Cancer therapies and treatment – side effects and nutritional implications
- Goals of care and guidelines for oral feeding
- Accommodating side effects
- Enteral tube feeding – Nasogastric, Gastrostomy, Jejunostomy

- Parenteral Nutrition
- Paediatric patients with cancer
- The terminal cancer patient
- Nutrition in Physiological Stress
- Physiological stress and its effect on body, nutritional implications.
- Fevers and infections
- Surgery and Management of Surgical Conditions
- Parenteral Nutrition – Types, mode, and composition of feeds
- Tube feeding – Routes, modes, composition, care to be taken during feeding
- Dietary guidelines
- Burns

G. Nutrition Education and Dietetic Counselling (10 Marks):

- Metabolic implications – nutritional requirement
- Management and nutritional care
- Nutritional Management of Patients with HIV, AIDS
- Nutritional Management – Counselling and Management
- Goals of care
- Timing of food presentation
- Guidelines for oral feeding anti-tumour therapy
- Accommodating taste changes
- External tube feeding
- Parenteral nutrition
- Patient co-operation
- Paediatric patients with cancer
- The terminal cancer patient
- Misconceptions in nutritional care
- Dietician as part of the Medical Team and Outreach Services.
- Clinical Information – Medical History and Patient Profile Techniques of obtaining relevant information, Retrospective information, Dietary Diagnosis, Assessing food and nutrient intakes, Lifestyles, Physical activity, Stress, Nutritional Status. Correlating Relevant Information and identifying areas of need.
- The Care Process – Setting goals and objectives short term and long term, Counselling and Patient Education, Dietary Prescription, Motivating Patients, Working with – Hospitalized patients (adults, paediatric, elderly, and handicapped), adjusting and adopting to individual needs.
- Outpatients (adults, paediatric, elderly, handicapped), patients' education, techniques and modes.
- Follow up, Monitoring and Evaluation of outcome, Home visits vii. Maintaining records, Reporting findings, Applying findings, Resources and Aids for education and counselling, Terminating counselling, Education for individual patients, Use of regional language, linguistics in communication process, Counselling and education.

H. Food Services Management (10 Marks):

- Introduction to food services and catering industry, Development of Food Service Institutions in India, Types of Services as affected by changes in the environment. ii. Hospital food service as a speciality – Characteristics, rates and services of the food production, service and management in hospitals. Role of the Food Service Manager /Dietician.
- Organizations – Types of organizations and characteristics.
- Organizational charts.

- Catering Management Definition, Principles and Functions, Tools of Management Resources. Attributes of a successful manager.
- Approaches to Management Traditional, Systems Approach, Total Quality Management.
- Management of Resources – Capital, Space, Equipment and Furniture, Materials, Staff, Time and Energy, Procedures Physical facility design and planning. Equipment selection.
- Purchase and store room management – Purchase systems, specifications, food requisition and inventory systems, quality assurance.
- Human Resource Management
- Definition, Development and policies
- Recruitment Selection, Induction
- Employment procedures: Employee Benefits, Training and Development, Human Relations, Job description, Job specifications, Job evaluation, Personnel appraisal.
- Trade Union
- Negotiations and Settlement.
- Financial Management (in brief since there is a separate subject Food Cost and Quality Control) – Elements of Financial management, Budget Systems and accounting, Budget preparation.
- Food Production and Service Operations
- General Planning
- Preliminary planning
- Consideration of patients with specific nutritional and dietary needs, labour use and productivity.
- Flow pattern.

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4. SYLLABUS FOR JUNIOR ACCOUNTS OFFICER (ACCOUNTANT)

A. General Intelligence & Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their

scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (10 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (5 Marks):

Candidates' ability to understand correct English, his basic comprehension and writing ability, etc. would be tested.

E. Government Accounting System & Budgeting (45 Marks):

Introduction of Government Accounting System and Government Budgeting, GFR, GeM, PFMS, Role & Functions of RBI.

F. Fundamental Principles and Basic Concepts of Accounting (45 Marks):

Financial Accounting - Nature and scope, Limitations of Financial Accounting, Basic Concepts and Conventions, Generally Accepted Principles. Basic Concepts of Accounting: Single and Double Entry System, Books of Original Entry, Bank Reconciliation, Journal, Ledgers, Trial Balance, Rectification of Errors, Manufacturing, Trading, Profit & Loss Appropriation Accounts, Balance Sheet, Distinction between Capital and Revenue Expenditure, Depreciation Accounting, Valuation of Inventories, Non-profit making organizations' Accounts, Receipts and Payments, Income & Expenditure Accounts, Bills of Exchange, Self-Balancing Ledgers.

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5. SYLLABUS FOR THE POST OF JUNIOR ENGINEER (AC & R)

A. General Intelligence & Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends,

Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Subject knowledge (85 Marks):

General - Knowledge of Indian Electricity Act, Indian Elect. Rules as amended up-to date. General conditions of supply and charges to be paid to licences for obtaining connection. CPWD General Specifications for Electrical Works, Principles of analysis of rates. General Principles in preparation of estimates, project reports, award of works and execution of works and measurement. ISI/BIS Standards and Codes of practices.
Internal Electrical Installations -
Systems of wiring and their design, distribution system. Apparatus for control, protection and Testing.

Earthing, Lighting Protection, Safety & Maintenance -
Necessity of earthing, earthing resistance, type of earthing. Lighting protection design, layout, material and installation. Safety procedures and practices, principles of equipment installation, preventive maintenance and testing of equipment.

Sub-Station up to 33 KV and Distribution -
Layout and Design for indoor and outdoor application. Specifications for equipment, Sub- Station earthlings, stand-by generating sets, commissioning procedures and tests. Distribution: Design of overhead line and underground distribution systems. Specification for cables, conductors, Supports etc. Cable joining and termination methods, power factor improvement, service connection to buildings.

Air-Conditioning Ventilation -
General principles of Refrigeration, Air-conditioning, evaporative cooling and ventilation, Heating and cooling load estimation. Classification of systems, their design and application, structural requirements, specifications for installations.

Water Supply -
Types of pumps and their characteristics. Prime movers, pumping systems and application. Specification for equipment and installation.

ELECTRICAL APPARATUS-

(i) Single and poly phase A.C. Circuit. Effects of resistance inductance and capacitance.
(ii) Single and poly phase transformers– constructional features, equivalent circuits performance, parallel operation, phase conversion. Separation of losses and determination of efficiency by various methods. Auto transformers.
(iii) Alternators, Constructional features, regulation, parallel operation and Protection. Automatic Voltage regulators, Emergency generating sets, automatic change over.
(iv) Induction machines, poly phase motor and its principle of operation and equivalent circuit. Torque, slip characteristics. Crawling, methods of starting, single phase motor, its theory, characteristics and application.

INSTRUMENT TRANSFORMERS, PROTECTIVE RELAYING, MEASUREMENTS -
Current, Voltage transformers. Constructional features of IDMT relays, instantaneous relays including knowledge of

overload earth fault, undervoltage, Bucholz relays. Connection diagrams, settings. Electrical instruments and Measurements, principles of construction and theory of measuring instruments for direct and alternating currents. Commercial types. Measurement of resistance, Voltage, current, power, power factor and energy. Watt meters, energy meters. Thermos couples, Resistance Thermometers, Pyro-meters. Fault locating bridges for cables. Measurements of resistance, inductance and capacitance, Wheatstone bridge.

INTERNAL COMBUSTION ENGINES

Fuels and Combustion. Fuels and their properties, combustion calculations. Analysis of products of combustion. Power cycles. Vapor power cycles Carnot and Rankine. Gas Power- Otto and Diesel cycles. Deviation of actual cycles from theoretical cycles. Internal combustion engines – Two and four stroke compression ignition and spark ignition engines. Combustion phenomena. Detonation, Knocking, scavenging of two stroke engines. Fuel injection and carburation. Lubrication and cooling system performance and testing of IC engines. Pollution control requirements/standards.

HEATING, AIR CONDITIONING AND REFRIGERATION

Refrigeration – Refrigeration and heat pump cycles. Vapour compression, absorption Cycles. Refrigerants and their characteristics. Air Conditioning – Psychrometric chart, comfort air-conditioning, comfort indices, ventilation requirements. Cooling and dehumidification methods. Industrial air-conditioning processes. Different methods of electric heating. Construction and performance of Electric heating equipment.

WORKSHOP TECHNOLOGY

Estimation of power and energy requirements of electric welding, different types of equipment used and their characteristics. Manufacturing and fabricating methods
and practices for various electrical and mechanical equipment such as pumps, switch boards, light fittings, AHUs etc.

ENERGY CONSERVATION, POWER FACTOR IMPROVEMENT

Comparison of different types of lamps from the point of energy conservation, calculation of payback period. Power factor improvement, Reduction of load current and transformer losses due to power factor improvements. KVA requirement for power factor improvement.

SOLAR ENERGY UTILISATION

Solar Hot Water system, principles, constructional features, constituent parts, installation, operation & maintenance, solar photo voltaic system, advantages/disadvantages of solar heating & solar photo voltaic system.

GENERAL SPECIFICATION OF AIR-CONDITIONING, REFRIGERATION & VENTILATION:-

Execution of installation, drawings and manual, air conditioning equipment, duet work, air handling and treatment, automatic control, general control and monitoring systems, general refrigeration machine, electric motors and electrical equipment noise vibration control, pipe work, valves, cocks and strainers, system monitoring instruments, thermal insulation, unitary air conditioners, water handling equipment, indoor air quality (IAQ), inspection and commissioning, operation and maintenance, painting, finishing and protective treatment.

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6. SYLLABUS FOR THE POST OF JUNIOR ENGINEER (CIVIL)

A. General Intelligence and Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural

Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Subject knowledge (85 Marks) :

Building Materials : Physical and Chemical properties, classification, standard tests, uses and manufacture/quarrying of materials e.g. building stones, silicate based materials, cement (Portland), asbestos products, timber and wood based products, laminates, bituminous materials, paints, varnishes. Estimating, Costing and Valuation: estimate, glossary of technical terms, analysis of rates, methods and unit of measurement, Items of work – earthwork, Brick work (Modular & Traditional bricks), RCC work, Shuttering, Timber work, Painting, Flooring, Plastering. Boundary wall, Brick building, Water Tank, Septic tank, Bar bending schedule, Centre line method, Mid-section formula, Trapezoidal formula, Simpson's rule. Cost estimate of Septic tank, flexible pavements, Tube well, isolates and combined footings, Steel Truss, Piles and pile-caps. Valuation – Value and cost, scrap value, salvage value, assessed value, sinking fund, depreciation and obsolescence, methods of valuation. Surveying : Principles of surveying, measurement of distance, chain surveying, working of prismatic compass, compass traversing, bearings, local attraction, plane table surveying, theodolite traversing, adjustment of theodolite, Levelling, Definition of terms used in levelling, contouring, curvature and refraction corrections, temporary and permanent adjustments of dumpy level, methods of contouring, uses of contour map, tachometric survey, curve setting, earth work calculation, advanced surveying equipment.

Soil Mechanics : Origin of soil, phase diagram, Definitions-void ratio, porosity, degree of saturation, water content, specific gravity of soil grains, unit weights, density index and interrelationship of different parameters, Grain size distribution curves and their uses. Index properties of soils,
Atterberg's limits, ISI soil classification and plasticity chart. Permeability of soil, coefficient of permeability, determination of coefficient of permeability, Unconfined and confined aquifers, effective stress, quick sand, consolidation of soils, Principles of consolidation, degree of consolidation, pre-consolidation pressure, normally consolidated soil, e-log p curve, computation of ultimate settlement. Shear strength of soils, direct shear test, Vane shear test, Triaxial test. Soil compaction, Laboratory compaction test, Maximum dry density and optimum moisture content, earth pressure theories, active and passive earth pressures, Bearing capacity of soils, plate load test, standard penetration test. Hydraulics :Fluid properties, hydrostatics, measurements of flow, Bernoulli's theorem and its application, flow through pipes, flow in open channels, weirs, flumes, spillways, pumps and turbines. Irrigation Engineering: Definition, necessity, benefits, 2II effects of irrigation, types and methods of irrigation, Hydrology – Measurement of rainfall, run off coefficient, rain gauge, losses from precipitation – evaporation, infiltration, etc. Water requirement of crops, duty, delta and base period, Kharif and Rabi Crops, Command area, Time factor, Crop ratio, Overlap allowance, Irrigation efficiencies. Different type of canals, types of canal irrigation, loss of water in canals. Canal lining – types and advantages. Shallow and deep to wells, yield from a well. Weir and barrage, Failure of weirs and permeable foundation, Slit and Scour, Kennedy's theory of critical velocity. Lacey's theory of uniform flow.
Definition of flood, causes and effects, methods of flood control, water logging, preventive measure. Land reclamation, Characteristics of affecting fertility of soils, purposes, methods, description of land and reclamation processes. Major irrigation projects in India.

Transportation Engineering: Highway Engineering – cross sectional elements, geometric design, types of pavements, pavement materials – aggregates and bitumen, different tests, Design of flexible and rigid pavements – Water Bound Macadam (WBM) and Wet Mix Macadam (WMM), Gravel Road, Bituminous construction, Rigid pavement joint, pavement maintenance, Highway drainage, Railway Engineering- Components of permanent way – sleepers, ballast, fixtures and fastening, track geometry, points and crossings, track junction, stations and yards. Traffic Engineering – Different traffic survey, speed-flow-density and their interrelationships, intersections and interchanges, traffic signals, traffic operation, traffic signs and markings, road safety.
Environmental Engineering: Quality of water, source of water supply, purification of water, distribution of water, need of sanitation, sewerage systems, circular sewer, oval sewer, sewer appurtenances, sewage treatments. Surface water drainage. Solid waste management – types, effects, engineered management system. Air pollution – pollutants, causes, effects, control. Noise pollution – cause, health effects, control.

Structural Engineering
Theory of structures: Elasticity constants, types of beams – determinate and indeterminate, bending moment and shear force diagrams of simply supported, cantilever and over hanging beams. Moment of area and moment of inertia for rectangular & circular sections, bending moment and shear stress for tee, channel and compound sections, chimneys, dams and retaining walls, eccentric loads, slope deflection of simply supported and cantilever beams, critical load and columns, Torsion of circular section.

General Specification:
General specification of earth work, Cement Contract Work, RCC Work, Brick Work, Stone Work, Wood & PVC Work, Flooring Work, Roofing Work, Finishing Work, Sanitary & Water supply work, Road work, File work, Water proofing treatment, Aluminum work & horticulture work i.e. mode of measurements of all above work.

7. SYLLABUS FOR THE POST OF PHYSIOTHERAPIST

Subject Knowledge (100 Marks):

A. Anatomy (10 Marks):

- General and Applied anatomy.
- Musculoskeletal system – Connective tissue & its modification, tendons, membranes, special connective tissue.
- Bone structure, blood supply, growth, ossification, and classification.
- Muscle classification, structure and functional aspect.
- Joints – classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy.
- Central nervous system – disposition, parts and functions
- Cardiovascular system
- Lymphatic system
- Respiratory system
- Digestive system
- Urinary and Reproductive system
- Endocrine system

B. Physiology (10 Marks):

- General Physiology
- Blood
- Cardiovascular system
- Respiratory System

- Nerve Muscle Physiology
- Nervous system
- Renal System
- Digestive System
- Endocrinology

C. Fundamentals of Occupational Therapy (10 Marks):

- History & development of Occupational Therapy

D. Rehabilitation (10 Marks)

E. Occupational performance model Generalized & specific principles of therapeutic exercises (10 Marks)

F. Therapeutic modalities (10 Marks)

G. Principles &methods of testing range of motion &muscle strength. Testing methods of sensation, perception, coordination and muscle tone (10 Marks)

H. Human development and its importance in occupational therapy. General principles of human maturation (10 Marks)

I. Activities of daily living Occupational therapy as diagnostic & prognostic procedure. Steps involved in preparing the client for return to work. (10 Marks)

J. Prevocational evaluation (10 Marks):

- Evaluation of work capacity, Evaluation of physical Capacity, Evaluation of functional capacity on the job or work site evaluation
- Work samples such as TOWER, BTE, WEST
- Work hardening & work conditioning
- Different types of tools & equipment's & their uses in
- Occupational Therapy
- Define & classify splints with their brief description, state general principles of splinting, describe material used. Hand function & evaluation methods

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8. SYLLABUS FOR THE POST OF JUNIOR ENGINEER (ELECTRICAL)

A. General Intelligence & Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural

Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (10 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (10 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (10 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (10 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Subject Knowledge (70 Marks):

Basic concepts: Concepts of resistance, inductance, capacitance, and various factors affecting them. Concepts of current, voltage, power, energy and their units.
Circuit law: Kirchhoff's law, Simple Circuit solution using network theorems.
Magnetic Circuit: Concepts of flux, mmf, reluctance, Different kinds of magnetic materials, Magnetic calculations for conductors of different configuration e.g. straight, circular, solenoidal, etc. Electromagnetic induction, self and mutual induction.

AC Fundamentals: Instantaneous, peak, R.M.S. and average values of alternating waves, Representation of sinusoidal wave form, simple series and parallel AC Circuits consisting of R.L. and C, Resonance, Tank Circuit. Poly Phase system – star and delta connection, 3 phase power, DC and sinusoidal response of R-Land R-C circuit.
Measurement and measuring instruments: Measurement of power (1 phase and 3 phase, both active and reactive) and energy, 2 wattmeter method of 3 phase power measurement. Measurement of frequency and phase angle. Ammeter

and voltmeter (both moving oil and moving iron type), extension of range wattmeter, Multimeters, Megger, Energy meter AC Bridges. Use of CRO, Signal Generator, CT, PT and their uses. Earth Fault detection.

Electrical Machines : (a) D.C. Machine – Construction, Basic Principles of D.C. motors and generators, their characteristics, speed control and starting of D.C. Motors. Method of braking motor, Losses and efficiency of D.C. Machines. (b) 1 phase and 3 phase transformers – Construction, Principles of operation, equivalent circuit, voltage regulation, O.C. and S.C. Tests, Losses and efficiency. Effect of voltage, frequency and wave form on losses. Parallel operation of 1 phase /3 phase transformers. Auto transformers. (c) 3 phase induction motors, rotating magnetic field, principle of operation, equivalent circuit, torque-speed characteristics, starting and speed control of 3 phase induction motors. Methods of braking, effect of voltage and frequency variation on torque speed characteristics.

Fractional Kilowatt Motors and Single Phase Induction Motors: Characteristics and applications.

Synchronous Machines - Generation of 3-phase e.m.f. armature reaction, voltage regulation, parallel operation of two alternators, synchronizing, control of active and reactive power. Starting and applications of synchronous motors.

Generation, Transmission and Distribution – Different types of power stations, Load factor, diversity factor, demand factor, cost of generation, interconnection of power stations. Power factor improvement, various types of tariffs, types of faults, short circuit current for symmetrical faults.

Switchgears – rating of circuit breakers, Principles of arc extinction by oil and air, H.R.C. Fuses, Protection against earth leakage / over current, etc. Buchholtz relay, Merz-Price system of protection of generators & transformers, protection of feeders and bus bars. Lightning arresters, various transmission and distribution system, comparison of conductor materials, efficiency of different system. Cable – Different type of cables, cable rating and derating factor.

Estimation and costing: Estimation of lighting scheme, electric installation of machines and relevant IE rules. Earthing practices and IE Rules.

Utilization of Electrical Energy: Illumination, Electric heating, Electric welding, Electroplating, Electric drives and motors.

Basic Electronics: Working of various electronic devices e.g. P N Junction diodes, Transistors (NPN and PNP type), BJT and JFET. Simple circuits using these devices.

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9. SYLLABUS FOR THE POST OF JUNIOR HINDI TRANSLATOR

A. General Hindi and Grammar (35 Marks)

B. General English (30 Marks):

General English Questions in this component will be designed to test the Candidate's understanding and knowledge of Hindi & English Languages and will be based on error recognition, fill in the blanks (using verbs, preposition, articles etc.), vocabulary, spellings, grammar, Sentence structure, synonyms, antonyms, sentence completion, correct use of words, phrases and idioms, ability to write language correctly, precisely and effectively.

C. Translation of small paragraphs consisting of 1-2 sentences from Hindi to English and vice versa (35 Marks):

Questions in this part should be designed to test the knowledge of translation.

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10. SYLLABUS FOR THE POST OF JUNIOR MEDICAL RECORD OFFICER

PART-I

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (10 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time

& Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (10 Marks):

Candidates' understanding of the Basics of English Language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. his/her writing ability would be tested.

E. Basic Computer Knowledge (10 Marks):

- General Computer Processing ability in MS-Office like Word Processing, Excel, Power Point etc. & Operating Systems.
- Professional Software/Hardware System relevant to the Post.
- Any other Computer/IT related questions.

Subject Knowledge (60 Marks):

1. Definition, objectives & functions and classifications of Hospitals.
2. Departmental administration, delegation and decentralization.
3. Departments and service units.
4. Medical Terminology: Elements of medical terms (Roots, prefixes, suffixes, colours, numerals, symbols, abbreviations). Terms related to Investigations, Operations, Treatment of conditions & Disorders.
5. Introduction, Values, Purposes and Uses of Medical Records.
6. Documentation of Records (indexes/ Registers).
7. Birth, Death, Registration and Correction in Record.
8. Medical Ethics and Legal Aspects of Medical Records.
9. International Classification of Diseases (lCD-10) and Related Health Problems.
10. Medical Coding.
11. Electronic Medical Record/ Hospital information System.
12. Contents and Components of Medical Record.

13. Numbering, Filing and Retrieval of Medical Records.

14. Retention, Preservation and Destruction of Medical Records.

15. Accidents registers and wound certificates Legal aspects of hospital-patient, doctor-patient, hospital doctor relationship.

16. Medico-Legal Cases.

17. Hospital Statistics.

PART-II

Skill Test:

The Skill Test will be of qualifying nature. Candidates will have to qualify the test for English or Hindi at the prescribed speed on Computer as per the advertisement.

11.SYLLABUS FOR THE POST OF JUNIOR WARDEN

A. General Intelligence and Reasoning (20 Marks):

It would include questions of both verbal and non-verbal type. The test will include questions on Semantic Analogy, Symbolic operations, Symbolic/Number Analogy, Trends, Figural Analogy, Space Orientation, Semantic Classification, Venn Diagrams, Symbolic/Number Classification, Drawing inferences, Figural Classification ,Punched hole/pattern-folding & unfolding ,Semantic Series, Figural Pattern–folding and completion, Number Series, Embedded figures, Figural Series, Critical Thinking, Problem Solving, Emotional Intelligence, Word Building, Social Intelligence, Coding and de- coding, Other sub-topics, if any Numerical operations.

B. General Awareness (20 Marks):

Questions are designed to test the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially 10 pertaining to History, Culture, Geography, Economic Scene, General policy and scientific research.

C. Quantitative Aptitude (20 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right

Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (20 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (20 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

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12. SYLLABUS FOR THE POST OF LAB TECHNICIAN

A. General Intelligence & Reasoning (15 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (15 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (15 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (15 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Subject Knowledge (40 Marks):

Biochemistry –

- Cleaning and care of general laboratory glass ware and equipment. Types of pipettes, calibration of pipettes.
- Distilled water. Method of preparation and storage of distilled water. Type of water distillation plants.
- Preparation of solutions – units of weights and volume, Calculation of concentration and methods of expressing concentration of solution.
- Units of Measurement - S.I unit and CGS units. Normality, Molarity, Molality
- Calibration of volumetric apparatus
- Principle, working and maintenance of Analytical balance
- Quality control and quality assurance in a clinical biochemistry laboratory
- Laboratory organization, management and maintenance of records
- Principles of assay procedures, Normal range in blood, Serum, Plasma and Urine and reference values.
- pH – Definition, Henderson Hasselbach equation, Pka value, pH indicator, Methods of measurement of pH, pH paper, pH meter, Principle, working, maintenance and calibration of pH meter
- Volumetric analysis- Normal and molar solutions, Standard solutions, Preparation of reagents, Storage of chemicals
- Working principles Types and applications of Electrophoresis – Paper, Agarose Gel, Cellulose Acetate and PAGE.
- Working principles, types and applications of Chromatography - Paper Chromatography, TLC, Ion Exchange, Affinity Gel, Filtration, Gas Chromatography and HPLC.
- Working principles, types and application of centrifugation
- Working Principles and application of photometry, and atomic absorption, Spectrophotometry and colorimetry.
- Definition, basic concepts of classification mechanism of action and properties of enzymes, factors influencing enzyme action
- Basic and elementary concepts of chemistry and properties of carbohydrates as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)

- Overview of metabolism of carbohydrates – Methods for determining glucose, ketones, lactate, pyruvate reducing sugars and mucopolysaccharides and their clinical significance. Biochemistry, types, criteria parameters in diagnosis and prognosis of Diabetes mellitus.
- Basic and elementary concepts of chemistry and properties of lipids as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)
- Overview of lipid. Importance of lipids in the body in body basic metabolic aspects and analytical importance. Disorders of lipid metabolism. Lipoproteins patterns in disease – analytical methods and procedures applicable to detecting and monitoring such disorders.
- Basic and elementary concepts of chemistry and properties of proteins & amino acids as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)
- Overview of metabolism of amino acids and proteins – current methodologists for their determination and identification in biological specimens – disease associated with alternation in or deficiencies of amino acids and proteins.
- Basic and elementary concepts of chemistry and properties of nucleic Acids as applicable to the human body.
- Basic concepts of principles of nutrition and nutrients macro and micro nutrients. Vitamins & Minerals. Vitamins- Fat soluble vitamins , Water soluble vitamins sources, Biochemical role, RDA, deficiency manifestations Minerals – Calcium, Phosphorous, Iron, Copper, Zinc, Magnesium, Manganese, Iodine.
- Analytical methods and recommendations for testing and assessing nutritional deficiency – Methods for assessing concentration of vitamins in biological samples.
- General requirements for laboratory assessment of trace elements including specimen collection, handling, selection of analytical methodology and establishing quality.
- Overview of Biochemical roles of major electrolytes and blood gases and their changes in pathological states – relationship between major electrolytes and acid base balance – application of physical and chemical principles to biological system – laboratory measurements of electrolytes and blood gases. Acid base balance disorders
- Overview of current concepts in endocrinology RIA, ELISA, chemiluminescence assay procedure for hormones – physiological effects produced by normal and abnormal levels of various hormones. Thyroid function test and Adrenal function test.
- Introduction to molecular Biology. Recombinant DNA technology, Role of recombinant DNA technology as diagnostic tool. Polymerase chain reaction.
- Overview of porphyrins, their precursors, primary and secondary disorders of porphyrin metabolism – diagnostic laboratory methodologies including appropriate specimen collection and preservation techniques related to porphyrins
- Laboratory tests and analytical methods used in identification and evaluation of hepatobiliary disorders, renal disorders and disorders of Stomach, pancreas and intestinal tract
- Overview of calcium and inorganic phosphate metabolism current laboratory analytical

Microbiology –

- History of Medical Microbiology - Host-Microbe relationship.
- Safety Measures in clinical microbiology
- Cleaning, care and handling of glassware
- Care and maintenance of Equipment in Microbiology.
- Microscopy: Principle, types and uses of microscope
- Sterilization and Disinfection - Definition, Types, principles, mode of action and methods. Qualities of a good disinfectant. Assay for various disinfectants .
- Biomedical waste management in a lab
- General characteristics & classification of Microbes : Classification of microbes. Morphological classification of bacteria, Bacterial anatomy (Bacterial cell structures)
- Growth and nutrition of bacteria, Culture media and culture methods-aerobic and anaerobic

- Quality control and safety in microbiology.
- Handling and care of laboratory animals.
- Antimicrobial agents, Antimicrobial susceptibility tests.
- Stains used in bacteriology Principle, procedures, significance and interpretation - Simple staining, Gram stain, Ziehl –Neelsen staining, Albert's stain, Capsule staining.
- Principle, procedures and interpretation of the biochemical tests for identification of different bacteria.
- Immunity – innate and acquired immunity, humoral and cell mediated.
- Antigen antibody reactions and their applications
- Complement
- Hypersensitivity
- Vaccines
- Gram positive & Gram negative cocci – Staphylococci, Streptococci, Enterococci, Pneumococci, Neisseria
- Gram positive bacilli – Corynebacterium, Mycobacterium, Actinomyces, Listeria, Bacillus, Clostridia
- Gram negative bacilli – Enterobacteriaceae, Pseudomonas, Vibrio, Aeromonas, Plesiomonas, Campylobacter, Bacteroides, Fusobacterium, Brucella, Haemophilus, Bordetella, Pasteurella, Francisella
- Spirochaetes, Chlamydia, Rickettsia, Mycoplasma, L forms
- General properties of viruses – Structure, classification and replication.
- Laboratory diagnosis of virus
- DNA virus –Adenovirus, Papova virus, Herpes virus, Varicella zoster virus, Cytomegalo virus, Hepatitis B virus
- RNA virus – Polio virus, Influenza virus, Para influenza virus, Mumps virus, Measles virus, Rubella virus, Respiratory syncital virus, Rhinovirus, Rotavirus, Hepatitis virus, Arbo viruses prevalent in India (Dengue, West Nile, Japanese Encephalitis, KFD), HIV, Rabies virus, SARS virus.
- Bacteriophage
- Introduction to Parasitology –Common definitions, Types and Classification of parasites.
- Collection transport and preservation of specimens for parasitological examination
- Protozoa: Entamoeba Trichomonas, Trypnosomes, Leishmania, Giardia, Plasmodium, Isospora, Balantidium, and Toxoplasma.
- Cestodes - Diphyllobothrium, Taenia, Echinococcus, Hymenolepis.
- Trematodes - Schistosoma, Fasciola, Fasciolopsis, Clonorchis, Paragonimus
- Intestinal Nematodes - Ascaris, Ancylostoma, Necator, Strongloides, Trichinella Enterobius, Trichuris
- Tissue Nematodes - Wucherei, Brugia, Loa loa, Onchocerca, Dracunculus
- Collection and preservation of specimens for parasitological examination, preservation of specimens of parasitic eggs and embryos, Preserving Fluids, Transport of specimens.
- Morphology and classification of fungus
- Laboratory diagnosis of fungus- Culture media used in mycology, Direct microscopy in Medical mycology laboratory, Processing of clinical samples for diagnosis of fungal infections i.e. Skin, nail, hair, pus, sputum, CSF and other body fluids.
- Superficial fungal infections
- Subcutaneous fungal infections
- Deep fungal infections
- Opportunistic fungal infections
- Techniques used for isolation and identification of medically important fungi
- Methods for identification of yeasts and moulds
- Preservation of fungal cultures

Pathology –

- General-Haematology: Origin, development, morphology, maturation, function and fate of blood cells, nomenclature of blood cells.
- Various methods of blood collection, anticoagulants-mechanism and uses.

- Basic concepts of automation in haematology
- Counting chamber- hemocytometry. Enumeration of RBC including various counting chambers, diluting fluids for RBC count.
- Hemoglobinometry. Principles and methods of quantitating Hb. Concentration of blood including knowledge of errors and quality control in various method. Abnormal hemoglobin and its investigation.
- ESR: introduction, factors affecting ESR, principles and methods of determining ESR, increasing and decreasing conditions of ESR.
- WBC: introduction, development of WBC, diluting fluids. Absolute eosinophil count, errors in sampling, mixing, diluting and counting.
- Cell counting, advantages and disadvantages, uses and mechanism of cell counting, quality control in cell counts.
- Preparation of peripheral smear and bone marrow smear. Thin smear, thick smear. Buffy coat smear, wet preparation. Romanowsky stain. Preparation advantages and disadvantages.
- Principle and methods of staining of Blood smears and bone marrow smears. Supravital stain. Recticulocyte count. Heinz bodies.
- Description of morphology of normal and abnormal red cells. Blood differential WBC counting. Recognition of abnormal cell. Anaemia – definition etiology classification and laboratory diagnosis.
- Methods of identification and estimation of abnormal hemoglobin including spectroscopy. HB electrophoresis. Alkali denaturation Test. Sickle cell preparation.
- Various benign leucocyte reaction – Leukocyposis. Neutrophilia, Eosinophilia, Lymphocytosis. Infectious mononucleosis. leucopenias.
- Leukemias – definition, causes, classification, detection of leukemia. Total leucocyte count in leukemias. Multiple myeloma.
- Blood Coagulation and disorders of hemostasis. Classification of coagulation factors, Principles and methods of assessment of coagulation. BT, CT, Prothrombin time, partial thromboplastin time, thromboplastin regeneration time
- Thrombocytopenia, thrombocythemias, platelet function test, platelet count. Clot retraction test. Platelet factor III Test.
- LE cell – definition, morphology causative agents. Various methods of demonstrating LE cells. Blood parasites. Malaria, LD bodies, microfilaria and methods of demonstration.
- Preparation of donor and collection of blood. Solution and apparatus used. Storage of blood. Preparation and storage of plasma. Preparation of packed red cells.
- Principles involved in Blood grouping. ABO system and the methods used. Factors influencing the results of blood grouping, Rh system. Rh antigen. Principles and methods used.
- Cross matching. Compatibility test, direct and indirect Coomb's test – Principle involved and the methods used. Blood transfusion and its Hazards.
- Definition, sources and types histological specimens, kinds of histological presentations
- Labelling, fixation, properties of fixing fluids, classification and composition of fixing fluids. Advantages and disadvantages of secondary fixatives. Post chroming.
- Tissue processing, dehydration and cleaning.
- Embedding. Water soluble substances, embedding in paraffin nitrocellulose
- Equipment for sectioning microtome, knife, honing and stropping. Types, care and use of microtome.
- Technique for sectioning – frozen section. Technique for sectioning – Paraffin embedded tissue. Errors in sectioning and remedies. Attaching blocks to carriers.
- Technique of processing bone for histological studies. Mounting and covering. Mounting media.
- Staining – theory, types of staining agent. Mordents and differentiation. H & E staining. Types of hematoxillin and its preparation. Eosin stock stain and other counter stain used.
- Demonstration of collagen, reticulin, elastin, fat, amyloid, glycogen, mucin, pigments and minerals (malarial, mercury, bile, lipofuscin, calcium, iron, copper).

- Principles of histochemistry and its application
- Demonstration of neuron, neuroglia, myelin and axon. Processing of eye ball for histology.
- Demonstration of fat, iron, amyloid, bile in large sections of tissue.
- Cytology – introduction, definition, types of cytological specimen, preparation of slide for microscopic studies, stains used.
- Museum technique. Preparation, setting up of and arrangement of museum.
- Preparation of cell blocks, mailing of slides.
- FNAC, definition, techniques involved in preparation of smear and staining. PAP smear.
- Calibration and Validation of Clinical Laboratory instruments

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13. SYLLABUS FOR THE POST OF LIBRARIAN GRADE III

A. General Intelligence and Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and

Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (10 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (10 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Subject Knowledge (Library methods and techniques) (60 Marks):

Library Methods and Techniques Library and Society: Laws of Library Science; Types of Libraries; Library Associations, Systems and Programmers; Library Movement and Library Legislation in India; Organizations and Institutions involved in the development of Library and Information Services-UNESCO, IFLA, FID, INIS, NISSAT, etc.
Library Management: Collection development - Types of Documents and Selection Principles, Acquisition Procedure, Acquisition of Journals and Periodicals, Preparation of Documents for use; Library Personnel and Library Committee, Library Rules and Regulations; Library Finance and Budget; Principles of Library Management, Library Organization and Structure; Use and Maintenance of the Library - Circulation, Maintenance, Shelving, Stock Verification, Binding and Preservation, Weeding out, etc.; Library Classification Theory and Practice: Canons and Principles, Library Classification Schemes- DDC, CC, UDC; Library Cataloguing Theory and Practice: Canons and Principles; Library Cataloguing Codes - CCC and AACR;
Reference and Information Sources: Bibliography and Reference Sources Types of Bibliography; Reference Sources- Dictionaries, Encyclopaedias, Ready Reference Sources, etc.; Sources of Information - Primary, Secondary, Tertiary, Documentary, Non-Documentary; E-Documents, EBooks, E-Journals, etc.; Information Services: Concept and need for Information; Types of Documents; Nature and organization of Information Services, Abstracting and Indexing Services; Computer based Information Services - CAS, SDI; Information Technology: Basics Introduction to Computers; Use of computers in Library housekeeping, Library Automation; Software and software packages; Networks DELNET, NICNET, etc.; National and International Information Systems NISSAT, NASSDOC, INSDOC, DESIDOC, etc.

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14. SYLLABUS FOR THE POST OF MEDICAL SOCIAL SERVICE OFFICER GRADE I

Subject Knowledge (100 Marks):

A. Nature and development of social work (10 Marks)

B. Sociological concepts and contemporary concerns (10 Marks):

Sociological concepts and contemporary concerns urban community development Human rights and social work practice, social policy

C. Human behaviour and social environment (10 Marks):

Human behaviour and social environment, state, political economy and governance, social work with communities,

social work with individuals, social work with group research in social work: quantitative approaches

D. Social action and social movements (10 Marks):

Social action and social movements, social work with the elderly, environment and social work, social work with families and children, occupational social work

E. Research in social work (10 Marks):

Research in social work, qualitative approaches

F. Administration of welfare and development services (10 Marks):

Administration of welfare and development services, organizational behaviour and employee development, social defense and correctional services, rural community development

G. Social justice and empowerment (10 Marks):

Social justice and empowerment, social development, management of development organizations Social work with persons with disabilities, aspects of applied social work in hospitals etc. Human rights and social work practice Social work practice in mental health settings

H. Social work and disaster management (10 Marks):

Social work and disaster management, conflict mitigation and peace building, gender and development.

I. Counselling (10 Marks):

Counselling theory and practice

J. HIV/AIDS (10 Marks):

HIV/AIDS and social work practice, health care social work practice

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15. SYLLABUS FOR THE POST OF OFFICE ASSISTANT (N.S.)

A. General Intelligence & Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends,

Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (10 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (10 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Central Govt. Service Rules (80 Marks):

Central Government Rules: Questions relating to CCS (Leave) Rule, CCS (Conduct) Rules, GFR, FR/SR, General Service Condition, Office Procedures, Types of correspondence, General Knowledge about IPC/CRPC, CPC/CAT/High Court, RTI Act, 2005, Establishment, Reservation, Roster, LTC, Travelling Allowance etc.

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16. SYLLABUS FOR THE POST OF PERSONAL ASSISTANT

PART-I

A. General Intelligence & Reasoning (20 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (20 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (20 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (20 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (20 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

PART-II

Skill Test in Stenography:

The Skill Test will be of qualifying nature. Candidates will have to qualify the test for English or Hindi at the prescribed speed on Computer as per the advertisement.

17. SYLLABUS FOR THE POST OF PRIVATE SECRETARY

A. General Intelligence & Reasoning (20 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (20 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (20 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (20 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (20 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

PART-II
Skill Test in Stenography:

The Skill Test will be of qualifying nature. Candidates will have to qualify the test for English or Hindi at the prescribed speed on Computer as per the advertisement.

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18. SYLLABUS FOR THE POST OF SECURITY-CUM-FIRE JAMADAR

A. General Intelligence and Reasoning (20 Marks):

It would include questions of both verbal and non-verbal type. The test will include questions on Semantic Analogy, Symbolic operations, Symbolic/Number Analogy, Trends, Figural Analogy, Space Orientation, Semantic Classification, Venn Diagrams, Symbolic/Number Classification, Drawing inferences, Figural Classification ,Punched hole/pattern-folding & unfolding ,Semantic Series, Figural Pattern–folding and completion, Number Series, Embedded figures, Figural Series, Critical Thinking, Problem Solving, Emotional Intelligence, Word Building, Social Intelligence, Coding and de- coding, Other sub-topics, if any Numerical operations.

B. General Awareness (20 Marks):

Questions are designed to test the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially 10 pertaining to History, Culture, Geography, Economic Scene, General policy and scientific research.

C. Quantitative Aptitude (20 Marks):

Number Systems: Computation of Whole Number, Decimal & Fractions, Relationship between numbers

Fundamental arithmetical operations: Percentages, Ratio and Proportion, Square roots, Averages, Interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time and work.

Algebra: Basic algebraic identities of School Algebra and Elementary surds (simple problems) and Graphs of Linear Equations.

Geometry: Familiarity with elementary geometric figures and facts: Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles.
Mensuration: Triangle, Quadrilaterals, Regular Polygons, Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square Base

Trigonometry: Trigonometry, Trigonometric ratios, Complementary angles, Height and distances (simple problems only) Standard Identities like sin20 + Cos20=1 etc.

Statistical Charts: Use of Tables and Graphs: Histogram, Frequency polygon, Bar- diagram, Pie-chart

D. English Language (20 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Subject Knowledge (20 Marks):

Security and Fire related questions

19. SYLLABUS FOR THE POST OF STENOGRAPHER

PART-I

A. General Intelligence & Reasoning (20 Marks):

It would include questions of both verbal and non-verbal type. The test will include questions on analogies, similarities and differences, space visualization, problem solving, analysis, judgement, decision making, visual memory, discriminating observation, relationship concepts, arithmetical reasoning, verbal and figure classification, arithmetical number series, non-verbal series etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationship, arithmetical computation and other analytical functions.

B. General Awareness (20 Marks):

Questions will be designed to test the ability of the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspects as may be expected of an educated person. The test will also include questions relating to India and its Neighbouring countries especially pertaining to Sports, History, Culture, Geography, Economic scene, General Polity including Indian Constitution, and Scientific Research etc. These questions will be such that they do not require a special study of any discipline.

C. English Language (80 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

PART-II

Skill Test in Stenography:

The Skill Test will be of qualifying nature. The candidates will have to appear for the stenography test. The candidates will be given one dictation for 10 minutes in English/Hindi at the speed of *80 w.p.m*. for the post of Stenographer.

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20. SYLLABUS FOR THE POST OF STORE KEEPER

A. General Intelligence and Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgment, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. the topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern folding & unfolding, Figural Pattern – folding and completion, indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thing, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

50% Questions from General Awareness: Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations as may be expected of any educated person. The test will also include questions relating to India especially pertaining History, Culture, Geography, Economic Scene, General Policy.

C. Quantitative aptitude (10 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ration & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work.

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Material Management (80 Marks):

Introduction to Materials Management: Objectives and Advantages of Materials Management. Interfaces of Materials Management: Internal and external interfaces. Organization for Material Management. Supply Chain Management: Concept, objectives of supply – production and distribution system, Role and Management of flow of material in supply chain management. Material Management Linkages: Linkages with other functional areas of Management i.e. Production, Accounting and Finance, Marketing, HRM, IT, TQM. A Brief discussion on the functions of each functional area of Management. Cost Involved in material management: Concept of costs and cost classification, specific costs associated with Material Management.

Storekeeping: Objectives and functions of storekeeping, location and layout of stores. Types of stores. Receipt of Materials: Receipt procedure, inspection and testing of materials, Rejection and Returns of materials. Forms used in receiving of materials like Material Received Note, Inspection Report and Rejection Report etc. Passing of Bills/invoices for payment. Issue of Materials: Issue procedure and documents used, store records like bincard and store ledger, →pricing of material issues – different methods like FIFO, LIFO, Simple average, weighted average, standard price, Replacement / market price etc. Material loses: Meaning, accounting treatment and control of different type of material losses (waste, scrap, spoilage, defectives, obsolescence etc.). Store Handling Equipment: Advantages

of using stores handling equipment, Types of handling equipment: manual and mechanical devices.

Purchase Procedure: Pre-purchase considerations, standard purchase procedure, post-purchase issues. Standard form used in purchasing like purchase requisition, tender / quotation documents, schedule of quotations, purchase order, follow-up order, cancellation of order, Bill of Materials etc. Special Purchase Systems – Forward Purchase, Tender purchase, Blanket order, zero stock, Rate contract etc. Price Forecasting: Price and Pricing impact, price negotiations and fixing. Purchasing under fluctuating prices, purchasing under uncertainty, Negotiations regarding quality, terms of contract, delivery, payment schedule, cash discount, quality considerations, etc. Public Buying: DGS&D Rate contract, GeM, GFR. Online Purchasing: Concept, advantages, procedure of online purchasing and current online purchase practices.

Buyer-seller Relationship: Importance of good buyer-seller relationship, Relation with supplier-policies and issues in relationship, Ethical issues in purchasing. Quality Control in Purchasing: Concept of Total Quality Management (TQM), Certification, Role of Material Management in TQM. Value Analysis and Value Engineering.

Business Correspondence: Letter Writing, presentation, Inviting quotations, Sending quotations, Placing orders, Inviting tenders, Sales letters, Inter -office Memo, Notices, Agenda.
Inventories: Meaning, types of inventories, definition as per relevant accounting standard, Need and benefit of holding inventories, objectives of inventory management.

Financial Accounting: Nature and scope, Limitations of Financial Accounting. Basic Concepts and Conventions, Accounting Standards: Meaning, Significance, Generally Accepted Accounting Principles (GAAP). Accounting Process: From recording of transactions to preparation of final accounts. Rectification of errors and Bank Reconciliation statement. Depreciation Accounting: Meaning of depreciation, causes, objects of providing depreciation, factors affecting depreciation, accounting treatment including provision for depreciation accounting. Methods of deprecation: straight line method and diminishing balance method.

Work Study: Importance of work study – Method Study and Work Measurement Method Study: Method and Method Study – Need for Method Study – Procedure of Method Study – Principles of Motion Economy.
Work Measurement: Techniques of Work Measurement including Estimating, Stopwatch Time Study, Predetermined Time Standards, Synthetic Estimates of Work Times, Activity Sampling. Computation of Standard Time – Elements – Types of Elements – Performance Rating – Allowances – Need for Allowances – Types of Allowances TPM: Meaning and objectives of TPM; Methodology of TPM, gains of TPM.
Material Logistics: Concept and Importance of Material Logistics. Logistic Tasks: Follow-up of Order, Transportation, Warehousing, Inventory Control, Information Monitoring. Logistic Planning: Major Aspects and Factors.
Transportation: A Brief Study of different modes of transport used for movement of materials, their relative advantages, disadvantages and suitability Warehousing: Concept of Warehousing (Warehouse, Depositor and Warehouseman), Elements and Functions of Warehousing. Types of Warehousing, Advantages of a Public Warehouse, Costs Associated with Warehousing,
Quality Management Concepts: ISO Certification. Methods of Control: Product, Process, Risk, Evolution, Management Approaches, Quality Management Support System. R Chart, P Chart and X charts; Acceptance Sampling & OC Curve in production Control. Supply Chain Management: Supply management an organization spanning activity. How purchasing becomes supply management? Supply Management and the Bottom line. The four phases of supply management. (Generation of requirement, sourcing, pricing and post award activities). Supply management systems: B2B, Strategic Supply Management. Enabling Concepts in Supply: Buyer-supplier relationship: Developing and Managing collaboration and Alliance relationship. Cross-functional teams and supply-Management Activities. Challenges and problems with cross functional approach, ERP Systems, Negotiations and Bidding, Information sharing.

The Indian Contract Act, 1872: Contract – meaning, characteristics and kinds, Essentials of valid contract Discharge of contract – modes of discharge including breach and its remedies, Contingent contracts, Quasi contracts The Indian Contract Act, 1872: Specific Contracts : Contract of Indemnity and Guarantee, Contract of Bailment, Contract of Agency The Sale of Goods Act, 1930: Contract of sale, meaning and difference between sale and agreement to sell, Conditions and warranties, Transfer of ownership in goods including sale by non-owners, Performance of contract of

sale, Unpaid seller – meaning and rights of an unpaid seller against the goods and the buyer.
Partnership Law The Partnership Act, 1932: Nature and Characteristics of Partnership, Registration of Firms, Types of Partners, Rights and Duties of Partners, Implied Authority of a Partner, Incoming and outgoing Partners, Mode of Dissolution of Partnership.
The Limited Liability Partnership Act, 2008: Salient Features of LLP, Difference between LLP and Partnership, LLP and Company, LLP Agreement, Partners and Designated Partners, Incorporation Document, Incorporation by Registration, Partners and their Relations, winding up.
The Negotiable Instruments Act, 1881

Meaning and Characteristics of Negotiable Instruments: Promissory Note, bill of exchange, Cheque, Holder and Holder in due Course, Privileges of Holder in Due Course, Negotiation: Types of Endorsements, Crossing of Cheque, Bouncing of Cheques
Computers in Material Management: Use of Computers in Material Planning, Purchase, Store, Issue and Inventory Control. Integrated Information System for Material Management. Evaluation of Material Management Function: Meaning and Procedure. Evaluation Tools and Techniques.
Computers in Material Management: Use of Computers in Material Planning, Purchase, Store, Issue and Inventory Control. Integrated Information System for Material Management. Evaluation of Material Management Function: Meaning and Procedure. Evaluation Tools and Techniques.

F. Basic Knowledge of GeM (10 Marks)

G. Statistics (5 Marks):

- Collection of Data
- Measures of Central Tendency
- Measures of Dispersion
- Correlation & Regression
- Index Numbers
- Use of Statistical Tool
- Bar Graph, Line Charts, Pie-Charts, Venn Diagram
- Percentile Rank and Quartile Rank
- Data Interpretation
- Central Tendency, Dispersion, deviation, variance
- Skewness & Kurtosis

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21. SYLLABUS FOR THE POST OF TECHNICAL OFFICER (TECHNICAL SUPERVISOR)

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small &

Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres,Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (5 Marks):

Candidates' understanding of the Basics of English Language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. his/her writing ability would be tested.

E. Subject Knowledge (80 Marks):

Biochemistry –

- Cleaning and care of general laboratory glass ware and equipment. Types of pipettes, calibration of pipettes.
- Distilled water. Method of preparation and storage of distilled water. Type of water distillation plants.
- Preparation of solutions – units of weights and volume, Calculation of concentration and methods of expressing concentration of solution.
- Units of Measurement - S.I unit and CGS units. Normality, Molarity, Molality
- Calibration of volumetric apparatus
- Principle, working and maintenance of Analytical balance
- Quality control and quality assurance in a clinical biochemistry laboratory
- Laboratory organization, management and maintenance of records
- Principles of assay procedures, Normal range in blood, Serum, Plasma and Urine and reference values.

- pH – Definition, Henderson Hasselbach equation, Pka value, pH indicator, Methods of measurement of pH, pH paper, pH meter, Principle, working, maintenance and calibration of pH meter
- Volumetric analysis- Normal and molar solutions, Standard solutions, Preparation of reagents, Storage of chemicals
- Working principles Types and applications of Electrophoresis – Paper, Agarose Gel, Cellulose Acetate and PAGE.
- Working principles, types and applications of Chromatography - Paper Chromatography, TLC, Ion Exchange, Affinity Gel, Filtration, Gas Chromatography and HPLC.
- Working principles, types and application of centrifugation
- Working Principles and application of photometry, and atomic absorption, Spectrophotometry and colorimetry.
- Definition, basic concepts of classification mechanism of action and properties of enzymes, factors influencing enzyme action
- Basic and elementary concepts of chemistry and properties of carbohydrates as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)
- Overview of metabolism of carbohydrates – Methods for determining glucose, ketones, lactate, pyruvate reducing sugars and mucopolysaccharides and their clinical significance. Biochemistry, types, criteria parameters in diagnosis and prognosis of Diabetes mellitus.
- Basic and elementary concepts of chemistry and properties of lipids as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)
- Overview of lipid. Importance of lipids in the body in body basic metabolic aspects and analytical importance. Disorders of lipid metabolism. Lipoproteins patterns in disease – analytical methods and procedures applicable to detecting and monitoring such disorders.
- Basic and elementary concepts of chemistry and properties of proteins & amino acids as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)
- Overview of metabolism of amino acids and proteins – current methodologists for their determination and identification in biological specimens – disease associated with alternation in or deficiencies of amino acids and proteins.
- Basic and elementary concepts of chemistry and properties of nucleic Acids as applicable to the human body.
- Basic concepts of principles of nutrition and nutrients macro and micro nutrients. Vitamins & Minerals. Vitamins- Fat soluble vitamins , Water soluble vitamins sources, Biochemical role, RDA, deficiency manifestations Minerals – Calcium, Phosphorous, Iron, Copper, Zinc, Magnesium, Manganese, Iodine.
- Analytical methods and recommendations for testing and assessing nutritional deficiency – Methods for assessing concentration of vitamins in biological samples.
- General requirements for laboratory assessment of trace elements including specimen collection, handling, selection of analytical methodology and establishing quality.
- Overview of Biochemical roles of major electrolytes and blood gases and their changes in pathological states – relationship between major electrolytes and acid base balance – application of physical and chemical principles to biological system – laboratory measurements of electrolytes and blood gases. Acid base balance disorders
- Overview of current concepts in endocrinology RIA, ELISA, chemiluminescence assay procedure for hormones – physiological effects produced by normal and abnormal levels of various hormones. Thyroid function test and Adrenal function test.
- Introduction to molecular Biology. Recombinant DNA technology, Role of recombinant DNA technology as diagnostic tool. Polymerase chain reaction.
- Overview of porphyrins, their precursors, primary and secondary disorders of porphyrin metabolism – diagnostic laboratory methodologies including appropriate specimen collection and preservation techniques related to porphyrins
- Laboratory tests and analytical methods used in identification and evaluation of hepatobiliary disorders, renal disorders and disorders of Stomach, pancreas and intestinal tract
- Overview of calcium and inorganic phosphate metabolism current laboratory analytical

Microbiology –

- History of Medical Microbiology - Host-Microbe relationship.
- Safety Measures in clinical microbiology
- Cleaning, care and handling of glassware
- Care and maintenance of Equipment in Microbiology.
- Microscopy: Principle, types and uses of microscope
- Sterilization and Disinfection - Definition, Types, principles, mode of action and methods. Qualities of a good disinfectant. Assay for various disinfectants .
- Biomedical waste management in a lab
- General characteristics & classification of Microbes : Classification of microbes. Morphological classification of bacteria, Bacterial anatomy (Bacterial cell structures)
- Growth and nutrition of bacteria, Culture media and culture methods-aerobic and anaerobic
- Quality control and safety in microbiology.
- Handling and care of laboratory animals.
- Antimicrobial agents, Antimicrobial susceptibility tests.
- Stains used in bacteriology Principle, procedures, significance and interpretation - Simple staining, Gram stain, Ziehl –Neelsen staining, Albert's stain, Capsule staining.
- Principle, procedures and interpretation of the biochemical tests for identification of different bacteria.
- Immunity – innate and acquired immunity, humoral and cell mediated.
- Antigen antibody reactions and their applications
- Complement
- Hypersensitivity
- Vaccines
- Gram positive & Gram negative cocci – Staphylococci, Streptococci, Enterococci, Pneumococci, Neisseria
- Gram positive bacilli – Corynebacterium, Mycobacterium, Actinomyces, Listeria, Bacillus, Clostridia
- Gram negative bacilli – Enterobacteriaceae, Pseudomonas, Vibrio, Aeromonas, Plesiomonas, Campylobacter, Bacteroides, Fusobacterium, Brucella, Haemophilus, Bordetella. Pasteurella, Francisella
- Spirochaetes, Chlamydia, Rickettsia, Mycoplasma, L forms
- General properties of viruses – Structure, classification and replication.
- Laboratory diagnosis of virus
- DNA virus –Adenovirus, Papova virus, Herpes virus, Varicella zoster virus, Cytomegalo virus, Hepatitis B virus
- RNA virus – Polio virus, Influenza virus, Para influenza virus, Mumps virus, Measles virus, Rubella virus, Respiratory syncital virus, Rhinovirus, Rotavirus, Hepatitis virus, Arbo viruses prevalent in India (Dengue, West Nile, Japanese Encephalitis, KFD), HIV, Rabies virus, SARS virus.
- Bacteriophage
- Introduction to Parasitology –Common definitions, Types and Classification of parasites.
- Collection transport and preservation of specimens for parasitological examination
- Protozoa: Entamoeba Trichomonas, Trypnosomes, Leishmania, Giardia, Plasmodium, Isospora, Balantidium, and Toxoplasma.
- Cestodes - Diphyllobothrium, Taenia, Echinococcus, Hymenolepis.
- Trematodes - Schistosoma, Fasciola, Fasciolopsis, Clonorchis, Paragonimus
- Intestinal Nematodes - Ascaris, Ancylostoma, Necator, Strongloides, Trichinella Enterobius, Trichuris
- Tissue Nematodes - Wucherei, Brugia, Loa loa, Onchocerca, Dracunculus
- Collection and preservation of specimens for parasitological examination, preservation of specimens of parasitic eggs and embryos, Preserving Fluids, Transport of specimens.
- Morphology and classification of fungus
- Laboratory diagnosis of fungus- Culture media used in mycology, Direct microscopy in Medical mycology

laboratory, Processing of clinical samples for diagnosis of fungal infections i.e. Skin, nail, hair, pus, sputum, CSF and other body fluids.

- Superficial fungal infections
- Subcutaneous fungal infections
- Deep fungal infections
- Opportunistic fungal infections
- Techniques used for isolation and identification of medically important fungi
- Methods for identification of yeasts and moulds
- Preservation of fungal cultures

Pathology –

- General-Haematology: Origin, development, morphology, maturation, function and fate of blood cells, nomenclature of blood cells.
- Various methods of blood collection, anticoagulants-mechanism and uses.
- Basic concepts of automation in haematology
- Counting chamber- hemocytometry. Enumeration of RBC including various counting chambers, diluting fluids for RBC count.
- Haemoglobinometry. Principles and methods of quantitating Hb. Concentration of blood including knowledge of errors and quality control in various method. Abnormal hemoglobin and its investigation.
- ESR: introduction, factors affecting ESR, principles and methods of determining ESR, increasing and decreasing conditions of ESR.
- WBC: introduction, development of WBC, diluting fluids. Absolute eosinophil count, errors in sampling, mixing, diluting and counting.
- Cell counting, advantages and disadvantages, uses and mechanism of cell counting, quality control in cell counts.
- Preparation of peripheral smear and bone marrow smear. Thin smear, thick smear. Buffy coat smear, wet preparation. Romanowsky stain. Preparation advantages and disadvantages.
- Principle and methods of staining of Blood smears and bone marrow smears. Supravital stain. Recticulocyte count. Heinz bodies.
- Description of morphology of normal and abnormal red cells.Blood differential WBC counting. Recognition of abnormal cell. Anaemia – definition etiology classification and laboratory diagnosis.
- Methods of identification and estimation of abnormal hemoglobin including spectroscopy. HB electrophoresis. Alkali denaturation Test. Sickle cell preparation.
- Various benign leucocyte reaction – Leukocyposis. Neutrophilia, Eosinophilia, Lymphocytosis. Infectious mononucleosis. leucopenias.
- Leukemias – definition, causes, classification, detection of leukemia. Total leucocyte count in leukemias. Multiple myeloma.
- Blood Coagulation and disorders of hemostasis. Classification of coagulation factors, Principles and methods of assessment of coagulation. BT, CT, Prothrombin time, partial thromboplastin time, thromboplastin regeneration time
- Thrombocytopenia, thrombocythemias, platelet function test, platelet count. Clot retraction test. Platelet factor III Test.
- LE cell – definition, morphology causative agents. Various methods of demonstrating LE cells. Blood parasites. Malaria, LD bodies, microfilaria and methods of demonstration.
- Preparation of donor and collection of blood. Solution and apparatus used. Storage of blood. Preparation and storage of plasma. Preparation of packed red cells.
- Principles involved in Blood grouping. ABO system and the methods used. Factors influencing the results of blood grouping, Rh system. Rh antigen. Principles and methods used.
- Cross matching. Compatibility test, direct and indirect Coomb's test – Principle involved and the methods used. Blood transfusion and its Hazards.
- Definition, sources and types histological specimens, kinds of histological presentations

- Labelling, fixation, properties of fixing fluids, classification and composition of fixing fluids. Advantages and disadvantages of secondary fixatives. Post chroming.
- Tissue processing, dehydration and cleaning.
- Embedding. Water soluble substances, embedding in paraffin nitrocellulose
- Equipment for sectioning microtome, knife, honing and stropping. Types, care and use of microtome.
- Technique for sectioning – frozen section. Technique for sectioning – Paraffin embedded tissue. Errors in sectioning and remedies. Attaching blocks to carriers.
- Technique of processing bone for histological studies. Mounting and covering. Mounting media.
- Staining – theory, types of staining agent. Mordents and differentiation. H & E staining. Types of hematoxillin and its preparation. Eosin stock stain and other counter stain used.
- Demonstration of collagen, reticulin, elastin, fat, amyloid, glycogen, mucin, pigments and minerals (malarial, mercury, bile, lipofuscin, calcium, iron, copper).
- Principles of histochemistry and its application
- Demonstration of neuron, neuroglia, myelin and axon. Processing of eye ball for histology.
- Demonstration of fat, iron, amyloid, bile in large sections of tissue.
- Cytology – introduction, definition, types of cytological specimen, preparation of slide for microscopic studies, stains used.
- Museum technique. Preparation, setting up of and arrangement of museum.
- Preparation of cell blocks, mailing of slides.
- FNAC, definition, techniques involved in preparation of smear and staining. PAP smear.
- Calibration and Validation of Clinical Laboratory instruments

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22. SYLLABUS FOR THE POST OF TECHNICAL OFFICER OPHTHALMOLOGY (REFRACTIONIST)

Subject Knowledge (100 Marks):

ANATOMY AND PHYSIOLOGY

- **Basic Human Anatomy:** 1. Cell and various tissues of the body. 2. Skeletal system of human body 3. Muscular system. 4. Embryology and development (including Embryology of the eye).
- **Basic Human Physiology:** 1. Cardio-vascular system. 2. Digestive system. 3. Respiratory system. 4. Endocrine organs. 5. Excretory system. 6. Reproductive system. 7. Central nervous system. 8. Peripheral nervous system. 9. Autonomic nervous system. 10. Organs of taste, smell and hearing.
- **Ocular Anatomy:** 1. Orbit & it's immediate relations. 2. Lids & their glands. 3. Conjunctiva, Cornea, Sclera and Limbus. 4. Iris & Ciliary body. 5. Lens and Vitreous. 6. Retina & Choroid. 7. Ocular muscles. 8. Visual pathways. 9. Lacrimal apparatus. 10. Higher visual centres.
- **Ocular Physiology:** 1. An introduction to general physiology of the eye. 2. Maintenance of transparency of the cornea 3. Maintenance of transparency of the lens. 4. Visual acuity & form sense. 5. Pupillary reflexes. 6. Accommodation. 7. Convergence. 8. Intra-ocular pressure. 9. Night vision. 10. Colour vision. 11. Visual fields. 12. Extrinsic muscles, actions and ocular movements. 13. Higher visual centres and righting reflexes. 14. Electro-physiological aspects (ERG, EOG & VER). 15. Functions of lacrimal apparatus and tears.

OCULAR PATHOLOGY, MICROBIOLOGY AND BIOCHEMISTRY

- **Ocular Pathology:** 1. Blood sample collection and preservation. 2. Routine Haematological examinations: Hb, BT, CT, TLC, DLC and ESR. 3. Peripheral Blood Film (PBF)- staining & its significance. 4. Urine sample collection methods. 5. Urine: Physical, Chemical & Microscopic examination. 6. Grossing of tissue. 7. Tissue processing. 8. Fixation of tissue. 9. Section cutting. 10. Staining: Haematoxylin, Eosin & Special stains.

- **Ocular Microbiology:** 1. Introduction to Microbiology & classification. 2. Normal flora of eye. 3. Sterilization /Aseptic techniques. 4. Culture media for Bacteria, fungi & Virus. 5. Bacteria: Gram positive & negative. 6. Fungi: Saprophytic and Pathogenic. 7. Virus. 8. Chlamydia & parasites. 9. Microbial diseases of the eye. 10. Staining procedures: Gram & KOH.
- **Ocular Bio-chemistry:** 1. Introduction to basic Biochemistry (carbohydrates, lipids, proteins and vitamins). 2. Tear film. 3. Metabolism of cornea and lens. 4. Aqueous & Vitreous. 5. Rhodopsin cycle.

BASIC ORTHOPTICS

- **Basic Orthoptics:** 1. General introduction. 2. Binocular vision & Space perception (Fusion, Diplopia, Correspondence, Stereopsis, Pannum's area, Fixation disparity, Horopter, BSV, Retinal rivalry, Physiological diplopia, Stereopsis & monocular clues, Egocentric localization, Theories of Binocular vision). 3. Extra-ocular muscles Anatomy and Physiology. 4. Laws of ocular motility. 5. Uni-ocular & Binocular movements (Version & Vergence, Fixation & field of fixation). 6. Near vision complex (Accommodation, Convergence & Pupillary constriction). 7. Confusion & Diplopia. 8. Suppression. 9. Stereopsis. 10. Asthenopia & Diplopia. 11. Visual acuity assessment in children. 12. Cover, cover-uncover & alternate cover tests. 13. Heterophoria: Classification, examination & management. 14. Orthoptic instruments: Near point ruler, Prism-Bar, Maddox-rod, Maddox-wing, Synoptophore.

OPTICS & REFRACTION

- **Physical & Visual Optics:** 1. Elementary basis of light (Interference, Diffraction, Scattering, Dispersion, Polarization & Spectrum). 2. Illumination & Photometry. 3. Laws of reflection. 4. Principles of refraction. • Refraction by Glass plate with parallel sides. • Refraction by Prisms (including nomenclature of prisms). • Refraction at Curved surfaces (Convex, Concave, Cylindrical & Sphero-cylindrical/Sturm's conoid). • Refraction by Optical systems (Combination of lenses, Compound homocentric system & Thick lenses). 5. Power specification (Refractive, Approximate, Back Vertex, Front Vertex, Equivalent & Effective Power). 6. Power measurement (Hand neutralization, lensometry & Lens surface power measurement/ Geneva lens measure). 7. Optical system of eye (Corneal & Lenticular system). 8. Catoptric images (Principle and utility of purkinje's image in keratometry and pachymetry). 9. Schematic & Reduced eye. 10. Physiological optical defects of eye. 11. Correction of Ammetropia: Myopia, Hypermetropia and Astigmatism (Spectacle magnification & Relative spectacle magnification). 12. Anisometropia and Aniseikonia. 13. Optics of Retinoscopy & Ophthalmoscopy.

- **Dispensing Optics:** 1. Ophthalmic lens materials and their characteristics. 2. Ophthalmic Prisms & Decentration (Prentice's rule). 3. Manufacturing of various types of spectacle lenses (Glass). 4. Manufacturing of various types of spectacle lenses (Plastic). 5. Aberrations & Ophthalmic lens design. 6. Transpositions – Simple and Toric. 7. Absorptive lenses & Lens coatings. 8. Bifocals & Trifocals. 9. Multi-focal lenses/ Progressive addition lenses (PALs). 10. Lenses for High refractive errors. 11. Spectacle frame materials & their characteristics. 12. Spectacle frame types & its parts. 13. Measurement for ordering spectacle, I.P.D. (Distance & near), Marking/ centration, V.D. Calculation. 14. Frame selection: Cosmetic & fitting considerations. 15. Spectacle frames fitting, alignment & adjustment. 16. Special purpose spectacles.

OCULAR PHARMACOLOGY

1. Ocular Pharmacology: 1. Ocular Pharmacology: an introduction. 2. Autonomic nervous system. 3. Routes of drug administration. 4. Miotics, Mydriatics & Cycloplegics. 5. Anti-bacterial drugs & therapy. 6. Anti-fungal drugs & therapy. 7. Anti-viral drugs & therapy. 8. Anti-inflammatory drugs & therapy. 9. Anti-glaucoma drugs & therapy. 10. Ocular Preservatives. 11. Ocular Lubricants. 12. Local Anaesthetics. 13. Ocular dyes. 14. Ocular Antiseptics & Disinfectants. 15. Anti-Vascular Endothelial Growth Factor (Anti-VEGF) drugs. 16. Contact lens solutions.

CLINICAL REFRACTION & CONTACT LENSES

- **Clinical Refraction:** 1. Myopia 2. Hypermetropia 3. Astigmatism 4. Aphakia & Pseudophakia 5. Presbyopia 6. Keratoconus 7. Anisometropia and Aniseikonia 8. Accommodation and convergence. 9. Refraction room & test chart standards. 10. Retinoscopy (Principle & Method)-Static and Dynamic 11. Objective methods of refraction (Ophthalmoscopy, Auto-refraction & Keratometry). 12. Monocular subjective refraction methods. 13. Binocular subjective refraction methods. 14. Near correction methods. 15. Recent refraction methods: Phorometry. 16. Prescription of glasses.

- **Contact Lenses:** 1. Historical development of Contact lenses. 2. CL material & manufacturing of soft & RGP. 3. Optics of CL. 4. Design of CL & effect of parameter changes in the fitting. 5. Verification & Modification of CL. 6. Review of Anatomy & Physiology of anterior segment. 7. Cornea & CL wear. 8. Routine pre-fitting examinations. 9. Slit Lamp Techniques. 10. Fitting philosophies of Soft & RGP CL. 11. Care & Maintenance.

CLINICAL ORTHOPTICS

- **Clinical Orthoptics:** 1. General introduction. 2. Binocular vision & Space perception (Fusion, Diplopia, Correspondence, Stereopsis, Pannum's area, Fixation disparity, Horopter, BSV, Retinal rivalry, Physiological diplopia, Stereopsis & monocular clues, Egocentric localization, Theories of Binocular vision). 3. Extra-ocular muscles Anatomy and Physiology. 4. Laws of ocular motility. 5. Uni-ocular & Binocular movements (Version & Vergence, Fixation & field of fixation). 6. Near vision complex (Accommodation, Convergence & Pupillary constriction). 7. Confusion & Diplopia. 8. Suppression. 9. Stereopsis. 10. Asthenopia & Diplopia. 11. Visual acuity assessment in children. 12. Cover, cover-uncover & alternate cover tests. 13. Heterophoria: Classification, examination & management. 14. Amblyopia: Definition, types, examination & management. 15. Anomalous retinal correspondence (ARC): types & examination. 16. Pseudotropia & measurement of angle kappa. 17. Measurement of ocular deviation: Objective & subjective methods. 18. Exotropia: Classification, examination & management. 19. Esotropia: Classification, examination & management. 20. Alphabet Phenomena/ Pattern. 21. Cyclo-vertical deviations: Classification, examination & management. 22. Orthoptic instruments.

BASIC INVESTIGATIVE OPTOMETRY:

- **Basic Investigative Optometry:** 1. Syringing and lacrimal function tests. 2. Ophthalmoscopy: Direct & Indirect. 3. Tonometry: Schiotz, Applanation & Non-contact. 4. Colour vision testing. 5. Contrast sensitivity. 6. Glare testing. 7. Perimetry: Goldmann, Humphrey & FDT. 8. Pachymetry: Optical & Ultrasonic. 9. Keratometry. 10. Auto-refraction. 11. Lensometry. 12. Exophthalmometry. 13. Specular microscopy. 14. Fluorescein staining techniques. 15. Slit lamp Biomicroscopy.

COMMUNITY OPTOMETRY AND EYE BANKING

- **Community Optometry:** 1. Concepts of community Optometry. 2. Epidemiology of Blindness (General Principles). 3. Epidemiology of Blindness (Disease specific strategies). 4. Survey methodology. 5. Screening procedures in Optometry. 6. School Eye screening programme. 7. Primary eye care. 8. Organization of Out-reach services. 9. Organization of Reach-in programmes. 10. Rehabilitation of the visually impaired. 11. National programme for the control of Blindness (NPCB). 12. Vision 2020: The right to sight.
- **Eye Banking:** 1. Publicity. 2. How to donate your eyes. 3. Collection of donor eyes. 4. Preservation of eyes. 5. General concepts about corneal transplantation.

ADVANCED CONTACT LENSES AND LOW VISION

- **Advanced Contact lenses:** 1. Historical development of Contact lenses. 2. CL material & manufacturing of soft & RGP. 3. Optics of CL. 4. Design of CL & effect of parameter changes in the fitting. 5. Verification & Modification of CL. 6. Review of Anatomy & Physiology of anterior segment. 7. Cornea & CL wear. 8. Routine pre-fitting examinations. 9. Slit Lamp Techniques. 10. Fitting philosophies of Soft & RGP CL. 11. Care & maintenance. 12. CL fitting in astigmatism. 13. CL fitting in Keratoconus. 14. Bifocal & Multifocal CL. 15. CL in aphakia. 16. Paediatric CL fitting. 17. Disposable CL & Frequent Replacement Program. 18. Cosmetic & Prosthetic CL. 19. Therapeutic CL. 20. CL fitting in Post-refractive surgery cases. 21. CL for sports vision. 22. Scleral lens fitting. 23. Ortho-Keratology (Ortho-K). 24. Complications of soft CL & their management. 25. Complications of RGP CL & their management. 26. Diagnosis & management of Dry eye in CL wear. 27. Review of contact lenses available in INDIA.
- **Low Vision:** 1. Low vision: definition & psychosocial implications. 2. Classification & Management of functional visual deficit: Cloudy media, Central field deficit & Peripheral field deficit. 3. Low vision examination 4. Specialized testing in low vision. 5. Magnification associated with low vision devices. 6. Low vision devices (Distance). 7. Low vision devices (Near). 8. Low vision devices (Non-optical). 9. Rehabilitation of low vision patient.

ADVANCED OPTICS AND ORTHOPTICS

- **Advanced Optics:** 1. Physiological optical defects of eye. 2. Correction of Ammetropia: Myopia, Hypermetropia and Astigmatism (Spectacle magnification & Relative spectacle magnification). 3. Anisometropia and Aniseikonia. 4. Optics of Retinoscopy & Ophthalmoscopy. 5. Aberrations & Ophthalmic lens design. 6. Absorptive lenses & Lens coatings. 7. Bifocals & Trifocals. 8. Multi-focal lenses/ Progressive addition lenses (PALs). 9. Lenses for High refractive errors. 10. Special purpose spectacles.
- **Advanced Orthoptics:** 1. General introduction. 2. Binocular vision & Space perception (Fusion, Diplopia, Correspondence, Stereopsis, Pannum's area, Fixation disparity, Horopter, BSV, Retinal rivalry, Physiological diplopia, Stereopsis & monocular clues, Egocentric localization, Theories of Binocular vision). 3. Extra-ocular muscles Anatomy and Physiology. 4. Laws of ocular motility. 5. Uni-ocular & Binocular movements (Version & Vergence, Fixation & field of fixation). 6. Near vision complex (Accommodation, Convergence & Pupillary constriction). 7. Confusion & Diplopia. 8. Suppression. 9. Stereopsis. 10. Asthenopia & Diplopia. 11. Visual acuity assessment in children. 12. Cover, cover-uncover & alternate cover tests. 13. Heterophoria: Classification, examination & management. 14. Amblyopia: Definition, types, examination & management. 15. Anomalous retinal correspondence (ARC): types & examination. 16. Pseudotropia & measurement of angle kappa. 17. Measurement of ocular deviation: Objective & subjective methods. 18. Exotropia: Classification, examination & management. 19. Esotropia: Classification, examination & management. 20. Alphabet Phenomena/ Pattern. 21. Cyclo-vertical deviations: Classification, examination & management. 22. Orthoptic instruments. 23. Neurogenic palsies (acquired & congenital). 24. Myogenic palsies (Myasthenia gravis, Chronic progressive external Ophthalmoplegia & Orbital peudotumour). 25. Mechanical disorders of ocular motility (Duane's reatrction syndrome, Brown's syndrome, Strabismus fixus & Adherence syndrome). 26. Nystagmus: Classification, examination & management. 27. Principles of non-surgical treatment.

CLINICAL INVESTIGATIVE OPTOMETRY

Clinical Investigative Optometry: 1. Syringing and lacrimal function tests. 2. Ophthalmoscopy: Direct & Indirect. 3. Tonometry: Schiotz, Applanation & Non-contact. 4. Colour vision testing. 5. Contrast sensitivity. 6. Glare testing. 7. Perimetry: Goldmann, Humphrey & FDT. 8. Pachymetry: Optical & Ultrasonic. 9. Keratometry. 10. Auto-refraction. 11. Lensometry. 12. Exophthalmometry. 13. Specular microscopy. 14. Fluorescein staining techniques. 15. Slit lamp Biomicroscopy. 16. Gonioscopy. 17. Corneal Topography. 18. Ultrasonography. 19. Flourescein angiography. 20. ERG, EOG & VER. 21. Dark adaptometry. 22. Ocular Photography (Anterior segment). 23. Laser-interferometry/ PAM (Potential Acuity Meter) 24. Refractive surgery (RK, PRK, Excimer laser & Lasik). 25. Paediatric eye examination. 26. Recent advances.

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23. SYLLABUS FOR THE POST OF WARDEN (HOSTEL WARDEN)

A. General Intelligence & Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Questions in this component will be aimed at testing the candidate's general awareness of the environment around him

and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (10 Marks):

The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (10 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Knowledge of Housekeeping, Material Management, Public Relations and Estate Management (80 Marks)

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24. SYLLABUS FOR THE POST OF YOGA INSTRUCTOR

Subject Knowledge (100 Marks):

1.1 **Introduction to Yoga and Yogic practices**

- Etymology of Yoga and definitions of Yoga in different Classical Yoga texts
- Brief introduction to origin, history and development of Yoga
- Aim, Objectives and Misconceptions about Yoga
- General Introduction to *Shad-darshanas* with special reference to *Sankhya* and Yoga
- General introduction to four paths of YogA
- Principles of Yoga and Yogic practices
- Guidelines for Instructors

1.2 **Introduction to Hatha Yoga**

- Distinction between Yoga Asana and Non-Yogic physical practices
- Introduction to important Hatha Yoga Texts with special reference to Hatha Yoga Pradipika and Gheranda Samhita
- Concept of Yogic Diet
- Causes of Success *(SadhakaTattwa)* and Causes of Failure *(Badhaka Tattwa)* in Hatha Yoga *Sadhana*
- Concept of *Ghata* and *Ghata Shudhhi* in Hatha Yoga

- Purpose and utility of *Shat-kriya* Hatha Yoga
- Purpose and utility of Asana in Hatha Yoga
- Purpose and importance of *Pranayama* in Hatha Yoga

1.3 **Introduction to Patanjali**

- Definition, nature and aim of Yoga according to Patanjali
- Concept of *Chitta* and *Chitta Bh umis*
- *Chitta-vrittis* and *Chitta-vrittinirodhopaya (Abhyasa* and *Vairagya)*
- Concept of *Ishwara* and *Ishwara Pranidhana*
- *Chitta Vikshepas (Antarayas)* and their associates *(Saiiabhuva)*
- Concept of *Chitta Prasaduna* and their relevance in mental well being
- *Kleshas* and their significance in Yoga
- Ashtanga Yoga of Patanjali : its purpose and effects, its significance

2.1 **Introduction to human systems, yoga and health**

- The nine systems of human body
- Functions of different systems of human body
- Introduction to Sensory Organs
- Neuromuscular co-ordination of Sensory Organs
- Basic understanding of Exercise Physiology
- Homeostasis
- The benefits of various *asana* on different parts of the human body
- The limitations and contra-indications of specific Yoga practices

2.2 **Yoga for wellness- prevention and promotion of positive health**

- Health, its meaning and definitions
- Yogic conceptions of health and diseases
- Concept of Pancha kosha
- Concept of Triguna
- Concept of Yogic principles of Healthy-Living
- Introduction to yogic diet and nutrition

2.3 **Yoga and stress management**

- Human Psyche: Yogic and modern concepts, Behavior and Consciousness
- Frustration, Conflicts, and Psychosomatic disorders
- Relationship between Mind and Body
- Mental Hygiene and Roll of Yoga in Mental Hygiene
- Mental health: a Yogic perspective
- Prayer and meditation for mental health
- Psycho-social environment and its importance for mental health (yama, and niyama)
- Concept of stress according to modern science and Yoga
- Role of Yoga in Stress management
- Role of Yoga for Life management

3.1 The movement of key joints of the body and the demonstrated ability to perform the same — Neck, Shoulder, Trunk, Knee, Ankle 5

3.2 *Sukhshma Vyayama* and *Shat Karma*
Neti, Dhauti , Kapalabhati , Agnisaar, Kriya , Trataka

Surya Namaskar and *Asana:*

4.1 Suryanamaskar (Sun Salutation)

a. Knowledge and Demonstration ability to perform *Suryanamaskar*

4.2 Asana:

a. Knowledge of upto basic postures as below and demonstrated ability to perform these postures.

- *Saravangasana* (shoulderstand)
- *Halasana* (plough)
- *Matsyasana* (fish)
- *Paschimottanasana* (sitting forward bend)
- *Bhujangasana* (cobra)
- *Salabhasana* (locust)
- *Dhanurasana* (bow)
- *Ardh matsyendrasana* (half spinal twist)
- *Kakasana* or bakasana (crow)
- *Padahasthasana* (standing forward bend)
- *Trikonasana* (triangle)

b. Knowledge of another five *asanas* chcsen by the applicant and demonstrated ability to perform the same.

c. Knowledge of the Sanskrit names of the postures and breathing exercises, detailed benefits and caution.

d. Knowledge of the five spinal movements — inverted, forward, backward, lateral twist and lateral bend and neutral positions of the spine

e. Knowledge of 360 degree, all round, Yogic exercise through the practice of *asanas,* proper relaxation, proper breathing, contra-indications, cautions and medical considerations; obvious and subtle benefits; and modification in basic postures to accommodate limitations

Pranayama and Practices leading to Meditation *5.1* ***Pranayama***

a. Familiarity with and Demonstrated ability to perform abdominal (and diaphragmatic), thoracic, clavicular breathing and the full Yogic breath.

b. Familiarity with and Demonstrated ability to perform *Anuloma Viloma, Bhastrika, Chandrabheda, Suryabhedhana, Ujjayi, Bhramari, Sheetali, Sheetkari,* and the knowledge of its benefits, limitation and applications.

5.2 Practices leading to Meditation

a. Familiarity with and Demonstrated ability to perform *Dharana* and *Dhyana* and to demonstrate allied practices like *Madras, Mantra Japa.*

b. Familiarity with the concept of environment for meditation and the benefits of meditation on health and well-being and its practical application in modern life.

Teaching Practice

6.1 **Knowledge of**

a. The scope of practice of Yoga and how to assess the need for referral to other professional services when needed

b. Observed capacity for, well-developed communication skills: listening, presence, directive and non-directive dialogue.

6.2 **Demonstrated ability**

a. To recognize, adjust, and adapt to specific aspirant needs in the progressive classes.

b. To recognize and manage the subtle dynamics inherent in the teacher aspirant relationship.

6.3 **Principles and skills for educating aspirants**

a. Familiarity with and demonstrated ability to apply effective teaching methods, adapt to unique styles of learning, provide supportive and effective feedback, acknowledge the aspirant's progress, and cope with difficulties.

6.4 **Principles and skills for working with groups**

a. Familiarity with and Demonstrated ability to design and implement group programs.

b. Familiarity of group dynamics and allied techniques of communication skills, time management, and the establishment of priorities and boundaries.

c. Familiarity with techniques to address the specific needs of individual participants, to the degree possible in a group setting.

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25. ASSISTANT NURING SUPERINTENDENT

(A) SUBJECT KNOWLEDGE : Questions to be based on B. Sc. (Nursing) course broadly covering the following topics:-

NURSING FOUNDATIONS:
a). Health and Wellness: Definition of health, Concept of health, Concept of wellness and wellbeing Concept of health-illness continuum, Models of health and
illness, Variables influencing health and health beliefs and practices, Health promotion, wellness, and levels of, disease prevention, Risk factors influencing
health
b). Nursing as a Profession: Nursing: Definition, concepts, philosophy, objectives, History of nursing in India, Characteristics, nature and scope of nursing
practices, Qualities of a professional nurse ,Professional responsibilities and roles of a nurse, Evidence Based Practice (EBP) in Nursing, Trends of nursing in
India ,Ethics and values in nursing,

c). Hospital Admission and Discharge: Admission to the hospital: Unit and its preparation admission bed. Admission procedure, Special considerations, Medico
legal issues in admission, Roles and responsibilities of the nurse in admission. Discharge from the hospital: Types of discharge: Planned discharge, LAMA/DAMA and abscond, referrals and transfers. Discharge planning. Discharge procedure. Special considerations. Medico legal issues in discharge, Roles and responsibilities of the nurse in discharge. Care of the unit after discharge

d). Communication and Nurse Patient Relationship: Communication and nursing practice; Basic elements of communication process, Forms of communication, Professional nursing relationship, Elements of professional, communication ,Patient teaching: importance, purpose, process, role of nurse.

e). Nursing Process and nursing care plan: Meaning, importance and steps in development.

f). Documentation and Reporting: Documentation: Purpose of recording and reporting Communication within the health care team Types of records: ward records,
medical/nursing records ,Common record keeping forms, computerized documentation ;Guideline for reporting: factual ,basis, accuracy, completeness
,correctness, organization, & confidentiality :Methods of recording ;Reporting: Change of shift ,reports, Transfer reports, incident reports. g). Vital Signs: Guidelines for taking vital signs.

i) Body temperature: Physiology, regulation, factors, affecting body temperature. Assessment of body temperature: sites, equipment's and technique, special considerations, Temperature alterations (hyperthermia, hypothermia & Heatstroke): assessment & management, Hot and cold applications.

ii) Pulse: Physiology and regulation, characteristics of the pulse, factors affecting pulse. Assessment of pulse: sites, location, equipment's and technique, special considerations. Alterations in pulse: Tachycardia and bradycardia.
iii) Respiration: Respiration: Physiology and regulation, mechanics of breathing, characteristics of the respiration, factors affecting respiration. Assessment of respiration: techniques, special consideration. Alteration in respiration: types, assessment & management.
iv) Blood pressure: Physiology and regulation, characteristics of the blood pressure, factors affecting blood pressure Assessment of blood pressure sites equipment's and technique, special considerations Alterations in blood pressure: Hypertension and hypotension.

h). Health Assessment: Purposes of health assessment, Health history taking, Physical examination-Preparation & organization of physical examination, Methods & techniques of physical assessment. General assessment, Head to toe examination, after care of physical assessment.

i). Care of Equipment and Linen: Indent, maintenance and inventory; Disposable; Reusable; Rubber goods; Enamelware; Stainless steel articles; Glassware; Hospital furniture; Sharp instruments; Machinery.

j). Care in Special Condition: Unconscious patient; Patient with fluid imbalance; Patient with Dyspnea; physically handicapped; Perineal care of terminally ill- patient with urinary catheter.

k). Infection Control in Clinical Settings: Nature of Infection; Chain of infection transmission; Hospital acquired infection; Hand washing: Medical and surgical hand washing; Disinfection of equipment and unit

l). Barrier Nursing: Standard Safety precaution (Universal Precaution); Different types of hand washing; Personal protecting equipment's types, uses, techniques of wearing and removing.

m). Biomedical waste management : Concept and importance; Segregation of hospital waste ;Treatment, transportation and disposal of hospital waste

n). Administration of drugs : Purposes of drugs; Routes of administration; Principles: Rights, special consideration, prescription, safety in administering drugs;
Storage and maintenance of drugs and nurses responsibility ;Factors influencing drugs action; Terminologies and common abbreviation used in prescription of drugs.
o). First Aid - Meaning of First Aid; Rules of First Aid. First Aid in emergency Situation such as:- Fire, Earthquakes, Famines; Fractures; Accidents; Poisoning;
Drowning; Hemorrhage; Insects bites; Foreign bodies ;Transportation of the injured Bandaging and splinting ;Immediate and later role of nurses
p). The dying Patient : Signs and symptoms of approaching death; Needs of the dying patient and relatives; Care of dying and last offices; Packing of dead bodies
in non-communicable and communicable diseases q). Meeting Needs of Hospitalized Patient:
i. Patient safety: Environmental safety: temperature, humidity, noise, ventilation, light, odour, pests control; Fall, fire and accident safety; Safety devices: restraints, side rails, airways, trapez etc.
ii. Hygiene: Hygienic care: Hair care, Oral care, Bed bath, Back care, Hand-feet & nail care, Eye care, Care of ear and nose; Patient environment: Unit cleaning/ disinfection.
iii. Comfort: Types of beds and bed Making; Comfort devices; Pain management: Nature, types, factors influencing pain, coping, assessment and management of pain.
iv. Elimination needs: Problems in sickness: Constipation, diarrhea, retention and in-continence of urine; Nurses role in meeting eliminating needs.
v. Meeting nutritional needs: Importance of Nutrition; Factors effecting nutritional needs.
vi. Activity and Exercises: Importance of activity and Exercise in health and sickness, active and passive Exercise.
MEDICAL SURGICAL NURSING
a) Role and responsibilities of a nurse in Medical and Surgical Settings : Outpatient Units; In- Patient Units; Intensive Care Units; Home and Community setting
b) Care of Surgical patient : Pre-operative; Intra operative; Post-operative; Nurses functions in operation theatre
c) Anesthesia: Classification, anesthetic agents and role of a nurse in anesthesia.
d) Disorders of the Respiratory System : Etiology, Clinical manifestation, diagnosis, treatment and medical, surgical, dietetics and Nursing Management with :

Asthma, Pneumonia, Lung abscess, Pleurisy, Emphysema, Bronchiectasis, Pulmonary Tumours, Pleural Effusions, Pulmonary Tuberculosis, Acute Respiratory distress syndrome, Preventive and rehabilitative aspects

e) Cardiovascular System : Diseases of heart; Cardiac arrhythmias; Cardiac arrests; Heart Blocks; Pericarditis, Myocarditis, Endocarditis; Congestive heart

failure; Hypertension; Angina Pectoris; Valvular Diseases ,Basic life support, Advance cardiac life support. f) Vascular Diseases: Arteriosclerosis; Atherosclerosis; Varicose veins and aneurysms.

g) Blood Disorder : Anaemia; Leukemia; Haemophilia; Hodgkins Diseases

Blood Transfusion : Indications; Grouping and matching; R.H factors; Plasma precautions in administration ; Blood bank functioning and hospital transfusion

committee. Bio-safety and waste management in relation to blood transfusion

h) Gastro Intestinal System : Stomatitis, gingivitis and parotitis; Dental caries; Tumours; Gastritis; Peptic ulcer; Enteritis; Colitis; Appendicitis; Haemorrhoids;

Hernia; Hepatitis; Cirrhosis of liver; Liver abscess; Cholecystitis; Hepatic coma; Pancreatitis; Carcinoma of liver and Pancreas; Tuberculosis

i) Musculo-Skeletal System: Disorder and diseases of bones and joints : Sprains, Dislocation, Fractures, Arthritis, Osteomyelitis, Tumours, Tuberculosis, Deformities

j) Genito Urinary System : Diseases of kidney, ureter, bladder and urethra; Congenital abnormalities; Acute and chronic nephritis; Nephrosis; Uraemia; Tumours;

Tuberculosis; Obstruction; Pyelitis and Pyelonephritis; Cystitis; Disorder of Micturition; Urethritis; Cancer Penis; Inflammation of testes, Epididymis and Prostate glands; Prostatic hypertrophy; Malignancy. Dialysis, renal transplant,trauma of ureter,bladder,urethra.

k) Nervous System: Diseases of Brain : Headache, Migraine; Epilepsy; Tumours; Chorea; Parkinsonism; Meningitis; Encephalitis; head and spinal cord Injuries; Cerebro-vascular accidents, haemorrhage, Embolism and thrombosis Diseases of Spinal Cord : Myelitis; Injuries; Tumours; Spinal cord compressions Diseases of Nerves : Neuritis and neuralgia; Myasthenia-gravis; Sciatica; Heat Stroke, heat Exhaustion; Cranial, Spinal Neuropathies;

l) Endocrine System, Metabolic disorders, deficiency diseases: Hyper and hypo Secretions of: Thyroid, Parathyroid, Pituitary, Adrenal gland; Cysts/Tumours; Metabolic Disorders: Diabetes Mellitus; Obesity; Gout; Deficiency Diseases: Common deficiency diseases; Prevalence in India; Early symptoms, prevention and treatment.

m) Operation Theatre: General set up of operation theatre and team; Theatre technique: - hand washing, gowning and gloving; Preparation of theatre equipment and instruments in common use; Role of a nurse in care of patient in the theatre; Principle of recovery room's care.

n) Intensive Care Nursing : Concept; Principles of Intensive Care Nursing; Role of a nurse in I.C.U; Common gad gets use in I.C.U/C.C.U-Cardiac Monitors, Birds, respirator, defibrillators, etc

o) Diseases and Disorders of eye : Blindness-causes and prevention; Eye banking, Community services; Conjunctivitis; Glaucoma; Cataract; Retinal detachments; Eye prostheses and rehabilitation; Injury and hemorrhage

p) Diseases of the ear : Wax; Foreign bodies; Furunculosis; Fungal infections; Otitis Media; Injuries and deafness; Mastoiditis; Menieres syndrome Disease of nose and throat : Rhinitis; Defected Septum; Sinusitis; Allergy; Adenoids; Laryngitis; Tonsillitis; Pharyngitis; Injury

q) Communicable Diseases: Virus: Measles, influenza. Chickenpox, Smallpox, Mumps, infective hepatitis, poliomyelitis Bacteria : Diphtheria, Whooping cough, tetanus, leprosy, typhoid, dysentery, gastro-enterities and cholera Zoonoses : Kala-azar, plague, replapsing fever and rabies; Mosquito : Malaria, filaria, dengue fever Sexually transmitted diseases : Gonorrhoea, Syphilis, Chancroid

r) Nursing management of patient with Immunological problems: Review of Immune system; Immunodeficiency disorders - HIV and AIDS.

s) Nursing Management Of Patients With oncological conditions: Structure & characteristics of normal & cancer cells; Prevention, screening, early detection, Common malignancies of various body systems warning signs of cancer; Modalities of treatment; Hospice care Stomal therapy.

t) Nursing management of patient in disaster situations: Causes and types of disaster; Policies related to emergency / disaster management at international, national, state, institutional level.; Disaster Management;

u) Nursing management of patient in emergency Emergency Nursing : Concept, priorities, principles & scope of emergency nursing Organization of emergency services: physical set up, staffing, equipment & supplies, protocols, Concepts of triage & role of triage nurse

MIDWIFERY AND GYNAECOLOGICAL NURSING

a) Introduction : Definition: Midwifery, obstetrical Nursing; Development of maternity services in India; Morbidity and mortality rates and their significance; Internal and External organs of reproduction; Female pelvis : Structure, diameters and type; Fertilisation and implantation of the ovum; Foetal development and foetal circulation.

b) Normal Pregnancy : Physiological changes due to pregnancy; Signs, symptoms and diagnosis; Influence of hormones
c) Pre-natal care : Objectives; History taking; Calculation of Expected date of delivery; Routine Examinations
d) Care and advice regarding : diet in pregnancy; anti-natal Exercises
e) Minor disorders of pregnancy and alleviations of discomfort
f) Diseases associated with pregnancy : Cardio vascular; Urinary; Respiratory; Metabolic; Nutritional deficiencies; Sexually transmitted diseases
g) Normal Delivery (Preparation) : For mother and baby; Preparation of the patient and delivery room-hospital and home; Psychological preparation of mother and family
h) Normal labour : Definition, stage and duration; Causes of onset of labour; True and False labour
i) First stage of labour : Signs of onset of labour; Physiological changes in first stage of labour; Management-preparation of labour; Preparation of women in labour - Physical and Psychological; Equipments for normal delivery; Monitoring of maternal and fetal condition; Vagina l Examination
j) Second Stage of labour : Signs of second stage; Mechanisms of labour; Monitoring of maternal and fetal conditions; Procedure for conduct of normal delivery; Prevention of Perineal tear; Episiotomy, suturing and care
k) Third Stage of labour : Signs, Physiological changes; Immediate care of baby; Technique of placenta expulsion and examination of placenta; Monitoring of maternal and newborn baby Nursing Management of Baby and birth : Assessment; Apgar scoring, examination for defects (head to foot examination); Care of cord, eyes and skin; Maintenance of body temperature; Prevention of infection and injury.
l) Nursing Management of mother during puerperium : Definition, objectives of care; Immediate postnatal care; Physiological changes during puerperium; Care of Episiotomy; Establishment of breast feeding; Postnatal Exercises; Postnatal Examination, follow up family welfare; Minor ailments and management
m) Complications of pregnancy and its management : Bleeding in early pregnancy; Bleeding in late pregnancy; Pregnancy induced hypertension, Pre-Eclampsia, Eclampsia; Hydramnios, Oligohydramnios; Hydatidiform mole; Pelvic inflammatory disease; Intra uterine growth retardation, intra uterine death; Post maturity n) High risk pregnancy and its management : Anaemia, Jaundice, Viral infection; Urinary tract infections; Heart diseases, diabetes mellitus; Osteomalacia; Sexually Transmitted diseases; AIDS; Teenage Pregnancy; Elderly pregnancy; Multi Para & Multiple pregnancy; Un-Educated mother
o) Labour Complications : Malpresentations and malpositions; Occipito posterior position; Breach and shoulder; Face and Brow; Cord presentation and prolapse; Obstructed labour; Ruptured uterus; Post partum haemorrhage, atonic uterus, retained placenta and membranes
p) Complications of puerperium and its management : Puerperal pyrexia, puerperal sepsis, Thrombophlebitis, Embolism, puerperal Psychosis
q) Obstetrics operations : Manual removal of placenta; Version: Internal, External; Vacuum extraction; Caesarean section; Medical termination of pregnancy;
Laparoscopic sterilization; Embryotomy
r) Drugs used in Obstetrics
s) Ethical and legal aspects related to midwifery and gynaecological Nursing.
t) Fertility and Infertility : Definition, causes both in male and female investigation and management
u) Diseases and disorders of female reproductive system including breasts : Infections; cyst, tumours and fibroids; Abortion; Ectopic pregnancy; Vaginal fistula; Erosion of cervix; Sexually transmission disease; Abnormalities of menstruation; Menopause; Mastitis; Breast abscess; Tumours; Malignancy
CHILD HEALTH NURSING
a) Concept in Child health care and role of Pediatric nurse in child care.
b) The healthy child : Growth and developments and factors affecting growth and development; Assessment of growth and development; Nurses responsibility to meet the nutritional needs; Accidents – Principal causes and Prevention; Value of play and selection of play materials; Review of immunization schedule; Care of under-five and under-five clinics, child guidance clinics
c) The Infant : Care of umbilical cord, skin, eye, mouth, buttocks and clothing's
d) Disorder of Infants : Vomiting; Diarrhea; Convulsion; Distension
e) Recognition and Management of Congenital anomalies : Causes, Prevention management; Preparation of the parents; Parents counselling
f) Breast Feeding : Importance and principles; Preparation of mother; Difficulties in breast feeding; Factors inhabiting and promoting lactation
g) Introduction of Solids : Weaning; Developing healthy foods habits; Diet of healthy Child; Artificial feeding; Reason and maintenance of hygiene; Feeding technique; Common Problems;
h) Pre and post-Operative care
i) Preparation of parents for surgery of the infant child

j) Diseases of Children : Etiology, Signs and symptoms, medical and surgical management, nursing care, Complication, diet and drug therapy, prevention and treatment with diseases-

i. Gastro- intestinal System : Thrush; Gastro enteritis, acute and chronic diarrhoea; cleft lip and cleft palate; Oesophageal atresia; Pyloric stenosis; Hernia; Intussusception, megacolon; Appendicitis, imperforated anus; Jaundice; Worm infestation

ii. Respiratory System : Foreign bodies; common cold and rhinitis; tonsils and adenoids; croup, influenza; bronchitis, pneumonia, emphysema

iii. Genito-urinary System : Nephritis, nephrotic syndrome, nephrosis; Undescended testes; Wilm's tumor; Prevention of infection; Congenital disorders

iv. Cardio Vascular system : Congenital defects; Rheumatic fever and Rheumatic heart diseases

v. Nervous System : Convulsions, epilepsy; Meningitis, Encephalitis; Epilepsy; Cerebral palsy;Mental retardation; Hydrocephalus; Spina bifida, meningocele; Mongolism

vi. Eye and Ear : Conjunctivitis; Squint; Congenital extract; Visual defects; Otorrhea; Otitis Media

vii. Nutritional Disorder : Marasmus; Kwashiorkor; Anaemia; Vitamin Deficiencies

viii. Communicable Diseases : Measle, Small pox and chicken pox; polio myelitis; mumps; Tetanus; Diphtheria and whooping cough; infective hepatitis, Scabies, Eczema, Pediculosis, ringworm, fungus, furunculosis

ix. Hemotological disorder : Anemias, leukemia, thalassaemia leukemia, haemophilia

x. Endocrine disorder : Diabetis insipidus; dwarfism; Orthopaedic disorder: Club feet; Fractures

xi. Child health Emergencies : Burns; Drowning; Foreign Bodies; Poisoning

xii. Psychological disorder and problems : Enuresis, tie, Speech defects, headache, Thumb Sucking, delinquency

xiii. The Handicapped Child : Importance of early diagnosis; Care of physically and mentally handicapped child; Deprived child; Community facilities; Adaption laws; Foster and orphanages

MENTAL HEALTH NURSING

a) Introduction: Meaning of mental illness; Terms used in psychiatry; Etiology of mental illness and contributing factors; Legal aspects in the care of the mentally
sick

b) Community Responsibility: Attitudes towards mentally ill; Misconceptions towards mentally ill; Health and social service for the mental illness

c) Diagnosis: Early recognition of deviations from the normal; Classification of mental disorders; Signs and symptoms of common mental illness

d) Management : Physical therapy; drug therapy, shock therapy; Psycho therapy; hypnosis, psychoanalysis; behavior therapy, reactional and social therapy, occupational therapy

e) Role of the Nurse : Over active patient; Destructive patient; Suicidal patient; Depression; Withdrawal and Mania; Prevention of accidents amongst mentally ill; Observation reporting and recording; Procedure for admission into and discharge from mental hospitals

COMMUNITY HEALTH NURSING

a) Concept, Definition of Community Health, differences between institutional and community health nursing, qualities and functions of a community health nurse b) Aspects of Community Health Nursing : Family Health services, maternal and child care and family planning services; School Health Services; Industrial Nursing; Geriatric Nursing; Tuberculosis Nursing; Nurses Role in National Health Programmes

c) Demography and Family Welfare : Demography Family Welfare : Its meaning, aims, objectives and importance; Policy; Family Planning methods; National
Programme; Nurse's role in family Welfare programme

d) Health Team : Composition at community : Health Centre (CHC), Primary Health Centre (PHC), Sub-Centre (SC)

e) Roles of Nursing Personnel at Various levels : Male & Female Health Worker; Health Supervisor; Public Health Nurse; Public Health Nurse Supervisor

f) Vital Health Statistics : Concept; Uses; Sources; Important rates and indices; Vital Health records and their utility y; Principles of reporting and recording;

g) Health Education and Communication skills : Concept, definition, aims & objectives of health education and scope; Methods of health education and Principles
of Health education; Communication; Meaning and methods of Communication, verbal and non-verbal Communication; Art of listening; Barriers of communication Audio visual aids : Definition; Advantages and disadvantages; Preparation and uses of simple aids

ANATOMY & PHYSIOLOGY a) Skeletal system
Bones : Types, Structure, Functions; Joints : Classification, Structure and Functions

b) Muscular System : Types, Structure, Functions; Position and action of Chief Muscles of the body

c) Cardio-Vascular System Blood : Composition, Blood Group, Cross Matching Heart : Position, Structure, Conduction

System, Functions and Cardiac Cycle; Circulation of Blood; Blood Pressure and Pulse; Lymphatic System
d) Respiratory System : Structure and Functions of Respiratory Organs; Physiology of Respiration; Characteristics of normal Respiration and its deviations e) Digestive System : Structure and Functions of Organs; Digestion, absorption and metabolism.
f) Excretory System : Structure and functions of Organs; Structure and functions of the Skin; Regulation of body Temperature
g) Nervous System: Type, structure and functions of neuron; Central Nervous System : Structure and Functions.
h) Endocrine System : Structure and functions of – pituitary, pancreas, thyroid, Parathyroid, Thymus and supra renal glands
i) Sense Organs : Structure and functions of eye, ear, nose and tongue; Physiology of Vision, hearing and equilibrium.
j) Reproductive System : Structure and functions of reproductive and accessory organs; Reproduction, Menstrual Cycle and Menopause; Reproductive Health; Structure and functions of male reproductive system.

MICROBIOLOGY
a) Scope and usefulness of knowledge of microbiology in Nursing
b) Classification of Micro-organisms and factors influencing growth
c) Sources of Infection
d) Portals of Entry and Exit of microbes
e) Transmission of infection
f) Collection of Specimens & Principles to be kept in mind while collecting specimen
g) Immunity: Meaning; Types of Immunity; Immunization Schedule (Currently Used)
h) Control and destruction of micro-organisms: Different types of Sterilization; Disinfection; Bio-safety and waste management
NURSING RESEARCH & STATISTICS a) Research and research process:
b) Research problem/ question
c) Review of literature
d) Research approaches and designs e) Population, Sample and Sampling f) Data collection methods and tools: g) Analysis of data.
h) Introduction to statistics Definition, use of statistics, scales of measurement. Frequency of distribution and graphical Presentation of data, Measures of central tendency: Mean, median, mode, Measures of Variability : Standard deviation Co-efficient of correlation Normal probability, Tests of significance : 't' test , chi square, Statistical packages and its application – SPSS
NURSING MANAGEMENT
a) Introduction to management & Administration in nursing: Definition, nature & Philosophy of Management and Administration
b) Management Process: Planning, Organization, Human resource management, Directing, Controlling, Budgeting, Material management. c) Management of nursing services in the Hospital and Community.
d) Regulatory bodies; Indian Nursing Council (INC), State Nursing Council Acts; - constitution, functions. Current trends and issues in
Nursing.
e) Professional ethics Code of ethics; Indian Nursing Council, International Council for Nurses (ICN). Code of professional conduct; INC, ICN f) Legal aspects in Nursing: Legal terms related to practice; registration and licensing Laws related to nursing practice; Breach and penalties Malpractice and negligence
g) Patient Rights.
h) Professional Advancement: Continuing education, Career opportunities, Membership with professional organizations; National and International, Participation in research activities, Publications; Journals newspapers etc.
COMMUNICATION & EDUCATIONAL TECHNOLOGY
a) Communication Process: Definition, meaning, types and process of communication, barrier of communication, techniques of therapeutic communication.
b) Interpersonal relations: Definition, types, Phases of interpersonal relationship
c) Human relation in context of nursing
d) Guidance & counselling: Definition and purpose. Guidance & counselling, Basic principles of guidance & counseling Types/ areas of
guidance approaches, organization of counselling services.
e) Methods of teaching, teaching learning process and educational media.
f) Information, Education & communication for health: Health behaviors , Health education, Planning for health education ,Health education with individual, group & communities ,Communicating health messages ,Methods and media for

communicating health message ,Use of mass media
(B) GENERAL APTITUDE AND GENERAL AWARENESS TEST a) General Intelligence.
b) General Awareness.
c) Keenness.
d) Reasoning.
e) Observancy.
f) Rationalization.
(C) COMPUTERS & NURSING INFORMATICS
a) Introduction: Concepts of Computer, Characteristics and generation of Computers, Basic Organization of Computer
b) Introduction to disk operating system:
c) Uses of computers and applications
d) Nursing Informatics: General purposes, Patient Record System, E- Nursing, Telemedicine , Telenursing., Electronic medical records,
Management information and evaluation system(MIES)

26. Assistant Store Officer

(Syllabus is only indicative. The questions can assess any aspect of knowledge, aptitude, attitude and practical skills, which is expected from a trained person to work efficiently at the advertised post) (Syllabus is also mentioned in advertisement no: Admn/Estt/04/03/2016-AIIMS.JDH Dated 07th may, 2016 in Recruitment Notice on AIIMS Jodhpur Website)

a) General Intelligence & Reasoning: It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. the topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern-folding & unfolding, Figural Pattern – folding and completion, indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thing, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

b) General Awareness: Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

c) Quantitative aptitude: The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ration & Proportion, Square roots, Averages, All India Institute of Medical Sciences, Jodhpur Examination Cell Page 8 of 8 Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons, Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ration, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency, polygon, Bar diagram & Pie chart.

d) English Comprehension: Candidates' ability to understand correct English, his basic comprehension and writing ability, etc. would be tested.

27. CLINICAL PSYCHOLOGIST

PROPOSED SYLLABUS

1. Clinical Psychology: Assessment and Diagnosis
2. Personality Psychology
3. Socio-cultural Influences on Behaviour
4. Psychopathology I
5. Psychopathology II
6. Clinical Counselling-Skills and Ethics
7. Advanced Physiological Psychology
8. Statistics and Data Analysis
9. Clinical Neuropsychology
10. Psychotherapeutic Intervention Techniques
11. Research Methods in Behavioural Science
12. Neurocognitive and Neurodevelopment Disorders
13. Clinical-Community Psychology
14. Medicine and Behaviour Modification
15. Psychology of Health and Wellbeing
16. Applied Clinical Project/Thesi

28. Upper Divisional Clerk (UDC)

General Intelligence & Reasoning : It would include questions of non-verbal type. The test will include questions on similarities and differences, space visualization, problem solving, analysis, judgment, decision making, visual memory, discriminating observation, relationship concepts, figure classification, arithmetical number series, non-verbal series etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationship, arithmetical computation and other analytical functions. General Awareness: Questions will be designed to test the ability of the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspects as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining to Sports, History, Culture, Geography, Economic scene, General Polity including Indian Constitution, and Scientific Research etc. These questions will be such that they do not require a special study of any discipline. Quantitative Aptitude: This paper will include questions on problems relating to Number Systems, Computation of Whole Numbers, Decimals and Fractions and relationship between Numbers,

Fundamental arithmetical operations, Percentages, Ratio and Proportion, Averages, Interest, Profit and Loss, Discount, use of Tables and Graphs, Mensuration, Time and Distance, Ratio and Time, Time and Work, etc. English Language : Candidates' understanding of the Basics of English Language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. his/her writing ability would be tested. Questions on 'General Intelligence and Reasoning' will be non-verbal considering the functions attached to the post. Questions on Numerical Aptitude and General English will be simple, of a level that an average matriculate will be in a position to answer comfortably. Questions on General Awareness will be also of similar standard. The questions in all parts will be of 10th standard level.

29. LOWER DIVISION CLERK (LDC)

Indicative Syllabus for Examination: General Intelligence: It would include questions of both verbal and non-verbal type. The test will include questions on Semantic Analogy, Symbolic operations, Symbolic/Number Analogy, Trends, Figural Analogy, Space Orientation ,Semantic Classification, Venn Diagrams, Symbolic/Number Classification, Drawing inferences, Figural Classification ,Punched hole/pattern-folding & unfolding , Semantic Series, Figural Pattern–folding and completion, Number Series, Embedded figures, Figural Series, Critical Thinking, Problem Solving, Emotional Intelligence, Word Building, Social Intelligence, Coding and decoding, Other sub-topics, if any Numerical operations. General Awareness: Questions are designed to test the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighboring countries especially 10 pertaining to History, Culture, Geography, Economic Scene, General policy and scientific research. Quantitative Aptitude: Number Systems: Computation of Whole Number, Decimal & Fractions, Relationship between numbers Fundamental arithmetical operations: Percentages, Ratio and Proportion, Square roots, Averages, Interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time and work. Algebra: Basic algebraic identities of School Algebra and Elementary surds (simple problems) and Graphs of Linear Equations. Geometry: Familiarity with elementary geometric figures and facts: Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles.

Mensuration: Triangle, Quadrilaterals, Regular Polygons, Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square Base

Trigonometry: Trigonometry, Trigonometric ratios, Complementary angles, Height and distances (simple problems only) Standard Identities like sin20 + Cos20=1 etc., Statistical Charts : Use of Tables and Graphs: Histogram, Frequency polygon, Bar- diagram, Pie-chart English Language: Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

30. SENIOR NURSING OFFICER (STAFF NURSE GRADE 1)

ANATOMY:
Introduction to Anatomy
Introduction to Anatomical terms organization of the human body
The Skeletal System
The Muscular System
The Nervous System
The Sensory Organs
Circulatory and lymphatic system
The Respiratory System
The Digestive system
The Excretory System (Urinary)
The Endocrine system
The Reproductive system including breast
The Integumentary system

Physiology:
Cell Physiology
Skeletal System
Muscular System
Control System - Nervous System, The Endocrine System
Blood & Circulatory System The Respiratory System The Digestive System
The Excretory System
The Sensory Organs
The Reproductive System
Defense: Neural, Lymphatic and Immunological NUTRITION - Introduction to Food & Nutrition, Carbohydrates, Fats, Proteins, Vitamins, Minerals Water & Electrolytes, Cookery rules & preservation of nutrients,
Normal Nutrition/ Balanced diet Therapeutic Nutrition

Biochemistry:
Introduction
Structure and functions of Cell membrane Composition and metabolism of carbohydrates Composition and metabolism of Lipids Composition and metabolism of Amino acids and proteins
Composition of Vitamins and Minerals Immunochemistry

NURSING FOUNDATIONS:
Health and Wellness
Nursing as a Profession
Hospital Admission and Discharge
Communication and Nurse Patient Relationship The Nursing Process
Documentation and Reporting
Vital Signs –
- Introduction
- Body temperature - Pulse
- Respiration
- Blood pressure
- Recording of vital signs

Health Assessment
Machinery, Equipment and Linen in Patient Care Meeting Needs of Hospitalized Patient –
- Patient safety
- Hygiene
- Comfort
- Sleep and rest
- Nutrition
- Urinary elimination
- Bowel elimination
- Mobility and exercise
- Oxygenation
- Fluid, electrolyte and acid base balances
- Skin integrity
- Psychosocial needs

Infection Control in Clinical Settings Administration of Medications
Meeting Needs of Perioperative Patients
Care of terminally ill patient
Theoretical Foundations of Nursing Practice Concept and Principles of First Aid
First aid in emergencies

PSYCHOLOGY:
Introduction
Biology of behaviour
Cognitive Processes
Motivation and Emotional processes
Personality
Psychological assessment & tests
Psychological assessment & tests
Mental hygiene and mental Health

MICROBIOLOGY:
Introduction & Historical background Definitions-Medical Microbiology, which includes the branches, Bacteriology, Virology, Mycology, Parasitology and Immunology. Infection, Pathogen, Commensal, Symbiosis, Host, Vector, Contagious Disease, Infectious disease, Epidemic, Endemic, Pandemic & Zoonosis, Flora of the human body.
Source, Mode of infection, route of infection and
Genetics:
Introduction
Maternal, prenatal and genetics
Genetic testing in the neonates and children Genetic conditions of adolescents and adults Services related to Genetics

MEDICAL – SURGICAL NURSING– I:
Introduction
Common signs, symptoms, and management

Nursing management of patients with respiratory problems
Nursing management of patients with disorders of digestive system
Nursing management of patients with cardiovascular problems
Nursing management of patients with haematologic problems
Nursing management of patients with genito- urinary problems-
-Urological obstructions
-Disorders of Kidney
-Disorders of ureter, urinary bladder and urethra Nursing management of disorders of male reproductive system
Nursing Management of patient with disorders of endocrine system-
-Disorders of Thyroid
-Disorders of Parathyroid
-Disorders of Pituitary gland
-Disorders of adrenal gland
Nursing management of patient with disorders of Integumentary system
Nursing management of patient with musculoskeletal problems - Disorders of musculoskeletal System Nursing management of patient with Immunological problems
Peri operative nursing

COMMUNITY HEALTH NURSING-I:
Introduction
Determinants of health
Epidemiology
Epidemiology and nursing management of common Communicable disease - Respiratory infections, Intestinal Infections, Arthropod infections, Viral, Bacterial, Riskettsial diseases, Parasitic zoonoses, Surface infection.
Epidemiology and Nursing management of Non- communicable diseases
Demography
Population and its control
spread, Endogenous and exogenous reservoir of infection
Infection Control-
-Sterilization and Disinfection -Chemotherapy
-Waste Disposal
General characteristics of Bacteria- -Morphology of Bacteria -Physiology of Bacteria -Identification of Bacteria -Bacterial Genetics
-Normal Flora Systemic Bacteriology Parasitology Mycology
Virology
Immunology
Applied Microbiology

PHARMACOLOGY:
Introduction to pharmacology Chemotherapy
Pharmacology of common used antiseptics, disinfectant and insecticides
infection,
Drugs acing on G.I system
Drugs used on respiratory systems
Drugs used on urinary system
Miscellaneous-
Drugs used on skin and mucous membranes
Drugs acting on nervous system
Cardiovascular drugs
Drugs used for hormonal, disorders and supplementation, contraception
And medical termination of pregnancy
Introduction to drugs used in alternative systems of medicine

PATHOLOGY:

Introduction
Cellular growth, Neoplasms
Special pathology - Respiratory tract, Cardio-vascular system, Blood Disorders, Gastro Intestinal Tract, Liver, Gall bladder & pancreas, Kidneys & Urinary tract, Male genital systems, Female genital system, Cancer Breast , Central Nervous system, Metastatic tumour, Skeletal system
Clinical pathology - Various blood and bone marrow tests in assessment and monitoring of disease conditions
Examination of body cavity fluids, transudates and exudates
Urine and faeces.

SOCIOLOGY:
Introduction
Individual & society
Culture
Social groups and processes
Population
Family and marriage
Social stratification
Types of communities in India - (Rural, urban and regional)
Social change
Social organization and social system Social control
Social problems

MEDICAL SURGICAL NURSING-II:
Nursing management of patient with disorders of ear, nose and throat - Disorders of External ear, Disorders of Middle ear, Disorders of Inner ear, Disorders of Nose, Disorders of Throat
Nursing management of patient with disorders of eye Nursing management of patient with neurological disorders - Disorders of Spine & Spinal Cord, Disorders of Brain, Infections, Movement disorder, Myasthenia gravis,
Nursing Management of Patient with burns, reconstructive and cosmetic surgery
Nursing Management of Patients with oncological conditions
Nursing management of patient in emergency and disaster situations - Disaster Management, Emergency Nursing
Nursing management of patient in critical care units - Nursing assessment, Organization, Special equipments Nursing care of the elderly- Nursing assessment, Demography

CHILD HEALTH NURSING:
Introduction: Modern concepts of child care- The healthy child, nursing care of neonate,
Integrated management of neonatal and childhood management
Nursing management in common childhood diseases - Management of behavior and social problems in children, cardiovascular system, Digestive system, Genitourinary urinary system, Endocrine system, Haematological condition, Genetic Disorders, Nutritional deficiency diseases, inborn error of metabolism
Management of behavior and social problems in children

MENTAL HEALTH NURSING:
Introduction
Principles & concept of Mental Health Nursing Assessment of mental health status
Therapeutic communication & nurse relationship Treatment modalities & therapies used in mental disorders
Nursing management of patient with schizophrenia, & other psychotic disorders
Nursing management of patient with mood disorders Nursing management of patient with neurotic, stress related & somatoform disorders
Nursing management of patient with substance use disorders
Nursing management of patient with personality, sexual & eating disorders
Nursing management of childhood & adolescent disorders including mental deficiency
Nursing management of organic brain disorders Psychiatric emergencies & crisis intervention Legal issues in mental health nursing Community mental health nursing

OBSTETRICAL & GYNECOLOGICAL NURSING INCLUDING MIDWIFERY:
Introduction to midwifery and obstetrical nursing

Review of anatomy and physiology of female reproductive system and fatal development Assessment and management of pregnancy in antenatal period
Assessment and management of intra-natal period Assessment and management of women during postnatal period
Assessment and management of normal neonates Assessment and management of high-risk pregnancy Assessment and management of abnormal labour Abnormalities during post-natal period
Assessment and management of high-risk newborn Pharmaco-therapeutics in Obstetrics
Family welfare Programme
Nursing Management of Patient with Disorders of female reproductive system (Gynaecological disorders)

COMMUNICATION & EDUCATIONAL TECHNOLOGY:
Review of communication Process Interpersonal relations
Human relations
Guidance & counselling
Principles & philosophies of Education Teaching-Learning Process
Methods of teaching
Educational media
Assessment
Information, Education & communication for health (IEC)

COMMUNITY HEALTH NURSING – II:
Introduction
Health Planning and Policies and problems Delivery of community health services
Community health nursing approaches, concepts and roles and responsibilities of nursing personnel Assisting individuals and groups to promote and maintain their health
National health and family welfare programmes and the role of a nurse
Nursing Research:
Research and research process Research problem/ question
Review of literature
Research approaches and designs Population, Sample and Sampling
Data collection methods and tools Analysis of data
Communication and utilization of research
Statistics:
Introduction to statistics - Definition, use of statistics, scales of measurement, Frequency of distribution and graphical presentation of data
Measures of central tendency - Mean, median, mode, Measures of Variability: Standard deviation, Co- efficient of correlation, Normal probability.
Tests of significance - t' test, chi square, Statistical packages and its application – SPSS

NURSING MANAGEMENT:
Introduction to management & Administration in nursing
Management Process – Planning, Organization, Human resource management, Directing, Controlling, Budgeting, Material management
Management of nursing services in the Hospital and Community - Nursing Management, Nursing Management, Organization, Human resource management, Directing and leading, Controlling/ Evaluation, Budgeting, Material Management Organizational behaviour and human relations Management of nursing educational institutions Regulatory Bodies, Legal and Ethical Issues

31. POST OF TECHNICAL OFFICER (DENTAL)/DENTAL TECHNICIAN

A. General Intelligence & Reasoning (10 Marks): It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural

Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, Number Series, Figural Series, Problem Solving, Word Building, Coding & decoding, Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, Punched hole/pattern –folding & unfolding, Figural Pattern – folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (10 Marks): Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (10 Marks): The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons , Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart

D. English Language (10 Marks): Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Mis-spelt words, Idioms & Phrases, One word substitution, Improvement of Sentences, Active/Passive Voice of Verbs, Conversion into Direct/Indirect narration, Shuffling of Sentence parts, Shuffling of Sentences in a passage, Cloze Passage, Comprehension Passage.

E. Subject Knowledge (80 Marks): 1. Anatomy, General and Dental ✓ General structure of mucous membrane (tongue, pharynx, lips), bones, muscles, blood vessels, lymphatics, glands & nerves. Blood and nerve supply in relation to face in general and teeth and associated structures in particular. ✓ Elementary knowledge of development of the jaws and teeth ✓ Structure, nomenclature and morphology of human teeth. ✓ Eruption; resorption & occlusion of teeth.

Relationship of teeth with investing tissues. ✓ Muscles of mastication and facial expression ✓ Tempromandibular Articulation. ✓ Course and distribution of Vth and VIIth Cranial nerves. ✓

2. Physiology & Histology, General & Dental ✓ Cell structure of the human body. ✓ Brief description of the histology and function of various dental and oral tissues e.g. Gingiva, Periodontal membrane, Alveolar process, Cementum-; Enamel, Dentine, Nasmyths membrane Pulp etc. ✓ Salivary glands, ducts and their functions. ✓ Composition and function of Saliva. ✓ Blood: Composition& functions ✓ Mastication, deglutition & Phonation. ✓ General outlines of the physiological processes of the human body-particularly circulatory.

3. Pharmacology, General & Dental: Brief description, nomenclature, derivation, dosage, pharmacological action and therapeutic uses of drugs commonly used in dentistry, astringent, mouth wash, antiseptics.

4. Pathology & Microbiology, General and Dental: ✓ General principles of Pathology ✓ Inflammation, degeneration and repair. ✓ Application of general principles of pathology to tooth and surrounding tissues ✓ Dental Anomalies. ✓ Attrition, Abrasion and Erosion. ✓ Oral manifestation of systemic diseases like diabetes, syphilis, anemia, vitamin deficiencies and infectious diseases like AIDS & Hepatitis B ✓ Infection Control in Dental Operatory and Bio-Medical Waste Management and Handling Neoplasm with reference to oral cavity. ✓ Elementary knowledge of Bacteriology, Asepsis, Infection, Immunity, Brief description of Pathology and

Bacteriology of Dental Caries and Gingival infections.

5. Dental Radiology: ✓ Fundamental and elementary principle of Dental Radiology including X- Ray machine, its components and maintenance. Sadioveseogphy ✓ Basic knowledge of Radiovisiography & extra oral radiographs including Panoramic (Orthopantographs and cephalostats. ✓ Automatic film processing ✓ Cataloguing & Indexing of IOPA Films. ✓ Knowledge of occlusal, bitewing and digital radiography Technical aspects of Dental Radiographs i.e. the taking, processing and mounting of Dental Radiographs. ✓ Characteristics of acceptable image, factors that influence finished radiographs, rules of radiation protection. Radiation Hazards.

6. Food and Nutrition: ✓ Basic 'food chemistry' in relation to general and Oral Health. ✓ Physical nature of diet in prevention of dental diseases. ✓ Carbohydrates, fats, proteins, vitamins, minerals and water in relation to dental and oral Health. ✓ General food requirements for growth, maintenance and repair of the body. ✓ Assessment & charting of individual diet & counselling. ✓ Effect of malnutrition on oral health. ✓ Special diet and its administration in maxillofacial injury cases.

7. Dental Hygiene and Oral Prophylaxis ✓ Definition of hygiene ✓ Objectives of dental hygiene ✓ Oral Prophylaxis - Various methods. ✓ Oral Prophylaxis: treatment system ✓ Stains on teeth - extrinsic, intrinsic and their management. ✓ Dental plaque. ✓ Brushing & Glossing technique ✓ Dental Calculus ✓ Technical knowledge of ultrasonic scaling ✓ Brief description and the role of Oral Prophylaxis in Gingivitis, Periodontitis, Periodontal and Alveolar abscess. ✓ Instruments, technique of Oral Prophylaxis ✓ Destining and polishing of teeth. ✓ Topical application of fluorides. ✓ Care of oral cavity and appliances during treatment of maxillofacial cases.

8. Dental Health Education, Community Public Health Dentistry & Preventive Dentistry ✓ Definition of Health and Dental Health ✓ Aims and objectives of Dental Health Education. ✓ Dental Health and Children. ✓ Steps in preventive program, patient counselling. ✓ Dental Health Education-Parents, mothers (anti and post-natal), infant's pre-school Children and grownup Handicapped children. ✓ Dental caries- Prevalence and Prevention. ✓ Prevention by fluoridation. ✓ Periodontal Diseases.

Saliva in relation to dental health and disease. ✓ Dietary habits and Dental Health ✓ Habits and Malocclusion ✓ Oral Cancer. ✓ Brief outline of historical background of public Health, History of dentistry and Public Health Services. Dental Health Team in relation to community health. ✓ Technical knowledge of Topical Fluoride Application

9. Dental Ethics, Jurisprudence and Orientation in Dentistry ✓ Difference between ethics and law, types of law. ✓ Legal impositions in relation to dental practice, code of ethics. ✓ Unlicensed practice of dentistry. ✓ Regulatory and professional organization. ✓ Place and function of dental profession in the society and discussion of economic problems ✓ involved therein. ✓ Social factors in dental Progress, income and living standard of people ✓ Objective and scope of dentistry. ✓ Dental specialties.

10. DENTAL MATERIALS General knowledge of various material used in Dentistry such as impression material, gypsum products, waxes, investing materials and various filling materials, Temporary and Permanent cements, orthodontic material and implant materials, materials used in maxillofacial and surgical prosthesis. Recognition and knowledge of various dental equipment and stores used in dental establishment. Organisation of dental stores, storage and accounting, handling and maintenance of dental items, assembly and minor repair of dental equipment

11. Applied Physics ✓ Specific gravity, density, properties of matter, including cohesion, capillarity, surface tension viscosity, elasticity, diffusion and osmosis. ✓ Heat: Temperature and its measurements Thermometers and Pyrometers. General account of expansion by heat of solids, liquids and gases, Thermostats, Pressure gas and hydraulic. Boyle's and Charles Laws. Unit of heat, thermal capacity and specific Heat, Change of State; Latent heat; Melting Point. Properties of vapours, conduction, convection and radiation. ✓ Principles of electro-technology applied to dental work room, small motors, constructional features and characteristics, electric furnaces, heaters, thermostats, pyrometers, spot welders, electroplating, electre-fornkag, and anodizing, wiring regulations relating to low voltage supplies.

12. Applied Mechanics
Forces, Parallelogram and triangle of forces. Moments, Couples, Centre of gravity, Principles of lever and cantilever work, Energy; Power, Friction, inclined plane, Screw Stress, Strain, Sheating Strain, Torsion, Bending movements, Strength and stiffness of materials.

13. Applied Chemistry ✓ Distinction between physical and chemical change; elements, mixtures, and compounds; composition of the atmosphere; Oxygen oxides, burning and rusting; water solvent properties and crystallization; action of water on metals; composition of water hydrogen; Laws of chemical combination; meaning of chemical symbols valency; simple chemical equations; acids, bases and salts. ✓ Electrolysis, The ionic theory of solution. The electro potential series, electroplating, General characteristics of the metals including an elementary study of the common metals and their alloys with special reference to those used in the dental work room. ✓ Alcohol, ethers, aldehydes and ketones, fatty acids and their more important derivatives, amines. Simple treatment of carbohydrates, fats and proteins, Benzenes and its homologues. General characteristics of aromatic substances. Synthetic resins and plastics used in Dentistry.

14. Applied Oral-Anatomy ✓ Elementary anatomy and structure of denture/bearing area. ✓ Human dentition and occlusion. ✓ Functions of teeth and morphology of Crowns of teeth. ✓ Muscles of mastication and facial expression. ✓ Mastication deglutition and phonation. ✓ Movements of temper-mandibular joint.

15. Dental Mechanics ✓ Infection control measures for impressions and models ✓ Impression Preservation and Boxing-in. ✓ Cast: Preparation, Trimming, including Orthodontic casts. ✓ Cast duplication - various methods. ✓ Construction of special trays - spacers ✓ Bite blocks- base plates and wax rims. ✓ Articulators: Classification, daily uses, and care of articulators. ✓ Adjustments, Mounting of casts. ✓ Articulation, Occlusal plane, protrusive balance, working bite, balancing bite, curve of space, compensating curve, lateral curve. ✓ Principles of selection of teeth. ✓ Setting of teeth and wax finishing. - ✓ Flasking, Dewaxing, Packing, curing and Deflasking. ✓ Finishing and polishing of dentures. ✓ Additions, repairs, relining and revasing of dentures.

16. Immediate denture construction. ✓ Making of acrylic teeth. ✓ Kennedy's classification of partial dentures. ✓ Principles of partial denture, design, clasp surveyor, surveying, path of insertion and removal. ✓ Establishment of clasp seat. Clasp's parts, classification, function and reciprocation. ✓ Principles of wire bending, Preparation of wrought clasps, occlusal rests and lingual bars. ✓ Casting machines: Centrifugal and pressure casting machines, Furnaces, Principles of casting ✓ Casting techniques of partial denture (Skeletal) Clasps, bars, occlusion rest. ✓ Setting of teeth and completion of dentures on metal skeletons. ✓ Mechanical principles of Orthodontic appliances, anchorage, force, tissue changes and retention. ✓ Stainless steel wire-preparation of clasps, springs and Arch wires for Orthodontic appliances. ✓ Use of various types of expansion screws. ✓ Designing - Implant supported Prosthesis (if facilities available for Dental Implants) ✓ Ceramic, laminates and Veneers. W ✓ Fabricating Maxillofacial prosthesis such as eye, nose ear, cheek, obturator and splint ✓ Indirect Resin

Restoration preparation techniques. ✓ Porcelain firing techniques ✓ Preparation of removable Orthodontic appliances, Activators, Retention appliances and Oral screen. ✓ Construction of fixed Orthodontic appliances, bands, tubes and arches. ✓ Soldering and spot welding-Soldering of clasps, tags, Strengtheners and lingual bars. ✓ Inlays and Crowns-classification and construction facing & backings. Casting Procedures. ✓ Principles of bridge work-types of abutments, abutments and pontics construction of bridges using porcelain and acrylic pontics.

17. Dental Materials and Metallurgy Dental Materials: ✓ Composition, Properties, Uses, Advantages & Disadvantages of the following materials: - Plaster of Paris; Dental Stone, Die Stone ✓ Investment Materials ✓ All Impression Materials Tray Materials ✓ Denture Base Materials, both for cold curing and heat curing, Tooth Materials Waxes, Base Plate Zinc Oxide ✓ Dental Luting Cements Dental Ceramics and indirect resin restoration materials. Dental Metallurgy: ✓ Metallurgical Terms ✓ Study of Metals used in Dentistry Particularly Gold, Silver, Copper, Zinc, Tin, Lead and Aluminum. ✓ Study of Alloys used in Dentistry particular y, Casting Gold Wrought Gold Silver Alloys, Stainless Steel, Chrome Cobalt Alloys.
Heat treatment-annealing and tempering. ✓ Solders, Fluxes, Anti Fluxes. ✓ Tarnish and Corrosion. ✓ Electric Deposition. ✓ Dental implant materials.

18. Basic Knowledge of Computers ✓ General office routine economics, record-keeping services, Professional referrals and computing skill; ✓ Record keeping of materials indented and Audit of use. ✓ Receipt and dispatch of work from clinicians

32. Prosthetics& Orthotic Technician

Life/Basic Science ,Anatomy-Introduction to human body terminology used, the skeleton classification of bones, terms used in describing bones, The skull, The Thorax, The Vertebral Column, The Pelvic girdle, The skeleton of upper Limb Scapula, Humerus, Ulna, Radius, Bones of wrist & hands, The skeleton of Lower Extremity. The innominate bone, femur, Patella, Tibia, Fibula Bones of the foot, The Joint of the Skeleton classification & Types, Joints of Upper Extremity, Joints of Lower Extremity, Knee, Ankle & Joints of the foot, Myology – the muscle of the skeleton, Name of Muscles & their derivation, Muscle of the head & face- Position, attachments, action & nerve supply, Muscle of the neck, Position, attachments, action & nerve supply, Muscle of the Chest- Position, attachments, action & nerve supply, Muscles of the Back - Position, attachments, action & nerve supply, Abdominal muscles- Position, attachments, action & nerve supply, Muscle of the Upper Extremity- Position, attachments, action & nerve supply, Muscles of the Lower Extremity- Position, attachments, action & nerve supply, Anatomical regions formation & contents of Axilla, antecubital fossa, anterior & posterior triangle of neck, femoral triangle, popliteal space, Living anatomy - recognition of structure in living body by inspection & palpitation, Ability to replace the surface of the living body, the position of the chief structures.

Physiology-Introduction to physiology & different systems of the body, Body fluids, tissue cells, cytoplasm, nucleus, irritability, conductivity, reproduction, Elementary tissue of the body & their functions development & growth of bones, The circulatory system - Heart, Blood vessels attached to it & nerve supply of the heart, cardiac cycle of the heart, cardiac cycle, the heart sounds, the pulse, blood pressure, the cardiac output, circulation of blood throughout body, Principal blood vessels, arteries & veins, The blood composition of blood & functions – the coagulation of blood, The spleen & the Reticula Endothelial system, The classification of food, The digestive system, The liver & pancreas, The respiratory system and respiration, Metabolism, Endocrine glands, Urinary system, Reproductive system, The nervous system - sympathetic, parasympathetic, Organs of special senses and skin.

Introduction to pathology, General pathology, Inflammation – signs and symptoms – types of inflammation, Acute & Chronic inflammation, Infections – Bacteria and viruses, immunity, types, classification, control of infection, cross infection & prevention. Asepsis and sterilization, pyogenic infection – boils, abscess setticamla, Tuberculous infection of bones & joints & management. Fungal infection – actiriomycosis, filariasis, leprosy, venereal disease syphilis, gonorrhoea, virus infection – poliomyelitis influence, Wounds – types of healing process, Tumours – connected to bones, Vascular disorders- Thrombosis, Embolism, Thrombi angiitis, Obliterans. Arthrosclerosis, hyper lesions, Gangrene – types, causes, signs & symptoms and management, Metabolic disorders – Diabetes, Rickets, Hyper & Hypo-para throidism & parathyroidism, metabolic disorders – Osteoporosis, Inflammation of joints – Arthritis – classification and pathology.

Workshop Technology

Introduction to workshop technology, Bench work-bench vice, leg vice, hand vice, hammers of different types, Files of various types, Chisels, Scrappers & their uses. Hack saws, wrenches, surface plate, angle plate, V-block Centre Punches, dividers & trammels, feeler & surface gauges, Measuring Tools – scales & tapes, callipers, Micrometre, Vernier callipers, gauges, plug gauges, dial gauges, vernier protractors sine bars, indicators, Fundamentals of riveting soldering, brazing and welding, Forging (blacksmith) -the forge & tools used in smithy & forging processes, Drilling-Machine operation, tools holding devices, types of drill, reamers and uses, cutting internal- external threads, by using taps and dies, counter sinking, counter boring, Lathe work-parts of centre lathe and their uses, turning of centre, taper burning screw

cutting in lathe, cutting tools used in lathe, tools speed, feed and depth of cut, Milling types of milling machines, Milling cutter, Up-cut & cone cut milling dividing head, set-up and operation on milling machine, Shaping – Shaping machine and their use, Grinding – The grinding wheels, abrasives, wheel bends, grit & grade, wheel structure, shape, selection, hand grinders, speed & feed, types of grinding & different types of grinding machines, Finishing process polishing, buffing, electroplating, copper, nickel and chromium, Material & Tools used in Prosthetics & Orthotics; - a. Rubber different types uses, density, resilience, utility in prosthetic & orthotic, Plastics-types, strength impregnation, lamination colouring & utility, Ferrous metals – Steel variety & uses, Non–ferrous metals and alloys, aluminium, various suitability, Fabrics, Leather, Plaster of Paris, Adhesive & Fasteners, Special tools &equipment used in prosthetic & orthotic work.

Technical Drawing

Introduction to Engineering Drawing, Definition, terms & uses, Printing letters, Lines, angles, triangles and quadrilaterals, Circles and Tangents, Regular polygon, Ellipse, Cycloid involute of circles, Orthographic projections, Plan, Elevation, Side view, Projections of points, lines & solids (Prisms, Pyramid Cylinders & Cones), including simple case of projections on oblique planes, Projections in oblique planes, auxiliary planes & views, First & third angle method, Full & sectional view of machine parts, Dimensioning the views, conventions used in view, Drawing of principle components, parts like bolts, nuts rivets, keys, locking pins, washers etc., Joints & coupling, rivetted, bolted, keyed, knuckle joints, Conventions in technical drawing, Isometric view of simple objects, Practice in hand sketches, line drawing, various prostheses, orthoses & the Rehab. Aids.

Applied Mechanics & Strength of Material

Simple stress & strains Definition of stress and strains, factor of safety, safe stress, modules of elasticity, longitudinal strain and lateral strains, Poisson's ratio, etc. – stress strain curve, statement of formulae relating between different moduli-simple problems to understand the above principles of composite bars – formula relating to loads & strains in individual members – simple problems to understand the above relations.

Geometric properties of sections Definition of moment inertia & radius of gyration of a solid body. Definition of centroid, moment of inertia of sections, determining of centroid of 'L' section, trapezoidal section. Determination

of common centroid for a combination of two circles – simple statement of formulas for regular section namely Rectangle, Triangle & Circle, parallel axis & perpendicular axis theorem.

Shear Free & Bending moments Classification of beams, types of loads, definition of sheaf force & bending moment of a loaded beam, shear force & bending moment diagrams for cantilevers and simple supported beams with concentrated UDL loads - simple problems to determine SF and BM at various points and drawn SF and BM diagrams.

Theory of simple bending Definition of bending stress, neutral axis, moment of assistant fibre stress etc. assumption to be absorbed in the simple bending theory. Derivation of the equation of simple bending. Simple problem of cantilever and simple supported beams with central concentrated load & full load.

Torsion Definition of torsion, angle of twist, polar moment of inertia etc. assumption mode in torsion, statement of torsion equation, simple problems of determine transmitted in solids & shafts only.

Springs Types of springs, uses of various springs, development of formulae for stiffness & deflection of closely coiled helical springs – simple problems.

Rivetted Joints Types of riveted joints, strength of joints, Howin's formula – simple problems in single rivetted & double rivetted lap & butt joints, to determine pitch & efficiency of the joints.

Thin cylinders Failure of thin cylinders, longitudinal & hoop stresses assumptions, derivation of formulae, simple problem.

Friction Principles of friction – co-efficient of, definition of static &dynamic friction, laws of static friction, least force required to drag a body on horizontal plane, angle of repose frictional force on inclined plane simple problems.

Graphic Station Vector representation drawing of space diagram, Bow's notations, drawing of Vector diagrams, Funicular polygon for parallel forces, determination of strength of members in simple cantilever, beams & king post roof stress, drawing of SF & BM diagrams.

Electronics & Bio-Electricity

Fundamental of Electricity Ohm's Law. Resistance in Parallel & series AC + DC resistance capacitance, impedance-power, power factor, transformers, meters.

Elements of Electronics Vacuum tubes, Diode, Electrode, Tetrode, Pentode, Electrification, valve as rectifier value as amplifier semi-conductors, integrated circuit, computers.

Bio-Electricity Biological potentials, muscle action potentials, electromyography, myoelectricity control of artificial arms, Bio-cybernetics.

Orthopaedics

Introduction to Orthopaedics, Principles of Orthopaedics, Congenital deformities, Diseases of Nervous System, Poliomyelitis, Obstetrical paralysis, Spastic paralysis, Hemiplegia, Paraplegia, Pyogenic infection, Tuberculosis, Leprosy, Chronic arthritis, Rheumatoid arthritis, Osteoarthritis, Neuropathic arthritis, Metabolic diseases, Rickets, Avitaminosis, Renal osteo-dystrophy, Bone tumours, Trauma, Fractures upper extremity, Fracture lower extremity, Spine dislocation, Management of fracture.

Amputation

Introduction to amputation surgery – indications, Principles of amputation, types, techniques, Amputation in children (Upper & Lower Extremity), Amputation in adults (Upper extremity) and its complications (various levels), Amputation in lower extremity & its complications (various levels), Postoperative care of the stump properties of good stump, Examination & prescription, Stump dermatology, Common skin diseases and their management, Stump hygiene, Latest techniques of amputation Myo-diesis – Myo-plasty, Immediate post-operative fitting or prosthesis for lower extremity amputation.

Kinesiology & Bio- mechanics

Definition of Kinesiology & Bio-mechanics, Diagram & Bio-mechanics, Origin & Development of Kinesiology, Definition of Kinetics & Kinematics, Centre of gravity of human body, Segment masses & the density of parts, the whole-body centres of gravity, Segment of centres of gravity, Origin of human movements & its significance, Forms of human movement their characteristics & factors affecting them, Analysis of movement, Body links and motion of parts, Closed chain systems, Open chain system,

Four bar mechanism, Measurement of joint motion, Electro-goniometric method, Mechanics of the spine, Lumbar discometry, Locomotor studies, Bio-mechanics of lower extremity, Bio-mechanics of upper extremity, Gait analysis, Bio-mechanics of squatting.

Prosthetics (Upper Extremity)

Medical (i) Classification by level of amputation. (ii) Medical consideration applied anatomy and pathological consideration. (iii) Classification of congenital skeletal limb deficiencies. (iv) Prosthetic prescription. (v) Amputee trainee.

2. Technical (i) Components of upper extremity prostheses, control & harness systems. (ii) Fabrication principle & procedures for upper extremity prostheses. (iii) Measurement fitting & alignment. (iv) Check- out & care of B.E. prostheses. (v) Bio-mechanics of U.E. prostheses. (vi) Harness & control systems Below Elbow harnessing & this causes, shoulder amputee harnessing. (vii) Clinical aspects of U.E. prosthesis. (viii) Training in the use of U.E. prosthesis. (ix) Electro-mechanical myoelectric and other externally powered prostheses. (x) Study of publication sources for updating information on upper limb prostheses.

Orthotic (Upper Extremity)

1. Medical (i) Functional anatomy of the hand. (ii) How to train the patients to use functional splint & arms braces.

2. Technical Measurement, selection of materials & components, fabrication & fitting of the following: (i) Static fingers hand splints. (ii) Functional hand splints (iii) Functional arm braces (iv) Feeders (v) Special assistive devices (vi) Myoelectric & other externally powered upper extremity orthoses.

3. Biomechanics of functional hand splints and arm Orthosis

P.M.R.

Introduction to Physical Medicine & Rehabilitation. Muscle charting. 3. Electro-therapy. 4. Hydro-therapy. 5. Application of the above topics in the management of amputees. 6. Neuro muscular diseases type and management. 7. Arthritis, types and management. 8. Crutches & uses, different crutches-gait. Bandaging of stumps, BK/AK etc. Knees, Elbows, Hands, Wrists and Ankles. 10. Gait training & analysis of patients fitted

with orthoses & prostheses. 11. Prescription of appliances.

Rehabilitation & Psychological Aspects

Introduction to the subject 2. Visit to various department, of the institution. 3. General idea & definition of prosthetics / orthotics 4. Function of different sections / departments of the institute. 5. Rehabilitation a. Concept of Rehabilitation b. Total Rehabilitation c. Rehabilitation team and role of each member of the team. Psychology of disabled a. Goals & methods of scientific psychology. b. Normal personality, normal growth & development c. Heredity d. Maturation. e. Environment & Learning factors in intellectual & Social Development. f. Psychometry g. Testing & motivation. h. Emotional life of the disabled & psychological assessment.i. Counselling. 7. Social & Vocational Aspects a. Disability & social effects b. home environment of disabled. c. Attitude of the society d. Vocational problems. e. Vocational assessment. f. Vocational counselling and guidance. g. Follow up.

Prosthetics (Lower Extremity)

1. Medical Subjects (i) Levels of amputation & limiting factor (lower extremity). - (ii) Psychological aspects of amputation. - (iii) Classification of congenital skeletal limb deficiencies. - (iv) Prosthetic / Orthotic clinic procedures. (v) Prosthetic prescription. (vi) Immediate & early Prosthetic management.

2. Technical (i) Prosthetic components below knee & above knee. (ii) Examination of stump, measurement, cast taking POP modification, fabrication, alignment & fitting procedures for below knee & above knee amputations (this includes prosthesis for partial foot, chop arts, Syme's below knee, through knee above knee amputations. (iii) Gait analysis of BK/ AK amputees fitted with prostheses. (iv) Check out of below knee & above knee prosthesis. (v) Maintenance & care of prosthesis. (vi) Hip disarticulation & Hemipelvectomy prosthesis. (vii) Bio-mechanics of below knee, above knee & hip disarticulation prosthesis. (viii) Fluid controlled prosthesis. (ix) Modular & other modern types of prosthesis. (x) Development of squatting type prosthesis – Madras & Jaipur port, etc. (xi) Study of publication of sources for updating information on L.E. Prosthesis Examination.

Orthotic (Lower Extremity)

1. Foot Orthoses a. Medical (i) Anatomy of Foot. - (ii) Orthotic - Prescription for different pathological condition, path mechanics of foot & ankles. b. Technical (i) Shoes, boots & their components. (ii) Shoe modifications, principles & procedures in clinical application. (iii) Biomechanics of the foot.

2. Ankle Foot Orthoses K.O. KAFO, EKAFO, GIL, HKAFO a. Medical (i) Path mechanics Lower extremity (including foot, ankle, knee and hip.). - (ii) Introduction to Orthotic management. (iii) Orthotic prescription. (iv) The influence of error in bracing upon deformity of lower extremity. (v) Gait training. - b. Technical (i) Lower extremity orthotic components & functions. (ii) Principles of taking measurements, selection of components, fabrication, alignment fitting and check-out of orthoses. (iii) Analysis of Pathological & orthotic gait. (iv) Study of publications sources for up-to-date information on lower extremity Orthoses.

Spinal Orthotic

1. (a) Medical (i) Surface of anatomy of trunk. - (ii) The Physiological basis of Orthotic methods. - (iii) Orthotic treatment of lumbar & thoracic conditions. (iv) Orthotic treatment of cervical condition. (v) The M.W. brace, exercises for users of M.W. Braces, Braces used in spine.

2 (b) Technical (i) Components of spinal braces. (ii) Bio-mechanics of the spine.

33. Speech Therapist /Technical Assistant ENT

General Intelligence & Reasoning: It would include questions of non-verbal type. The test will include questions on similarities and differences, space visualization, problem solving, analysis, judgment, decision making, visual memory, discriminating observation, relationship concepts, figure classification, arithmetical number series, non-verbal series etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationship, arithmetical computation and other analytical functions.
Quantitative Aptitude: This paper will include questions on problems relating to Number Systems, Computation of Whole Numbers, Decimals and Fractions and relationship between Numbers, Fundamental arithmetical operations, Percentages, Ratio and Proportion, Averages, Interest, Profit and Loss, Discount, use of Tables and Graphs, Mensuration, Time and Distance, Ratio and Time, Time and Work, etc.
Computer Knowledge: Candidates' understanding of the Basics of Computer Knowledge, its parts, functions, emails, MS office, etc.

l. Communication Sciences - Speech & Language
a. Basic Concepts in Speech, Language and Communication
b. Pre-requisites and Normal Developmental Aspects of Speech, Language, Voice, Fluency and Prosody
c. Basic Concepts Related to Incidence and causative factors for Speech-Language, Feeding and Swallowing Disorders including Classification and Characteristics
2. Basic Concepts Related to Incidence and causative factors for Feeding and Swallowing Disorders including Classification and Characteristics
3. Communication Sciences - Audiology
a. Historical Aspects
b. Concept of dB and Threshold Measurements
c. Properties of Sound
d. Causes of hearing loss
4. Anatomy, Physiology and Pathology related to Speech - Language & Hearing
a. Speech Systems
b. Auditory Systems
c. Central Nervous System
d. General Pathology
5. Clinical Psychology
a. Basic Concepts
b. Clinical Methods
c. Developmental Psychology
d. Learning Behavior Modification and Counselling
6. Electronics and Acoustics
a. Introduction to Electronics & Signal Processing
b. Fundamentals of Acoustics
c. Introduction to Information Technology
d. Instrumentation in Speech, Language and Hearing
7. Clinicals Aspects in Audiology and Speech-Language Pathology
8. Indian Constitution and Human Rights
9. Basics in Computer Applications
10. Speech-Language Pathology - Assessment & Management
a. Basic Concepts of Intervention and Procedures involved in Speech-Language Diagnostics and Therapy
b. Diagnostic Models and Approaches
c. Execution of Speech-Language Therapy, Documentation and Professional Codes
11. Audiological Evaluation
a. Pure Tone Audiometry, Speech Audiometry, Clinical Masking, Calibration
12. Linguistics & Phonetics
a. Language and Linguistics
b. Morphology, Syntax, Semantics and Pragmatics
c. Phonetics and Phonology
d. Language Acquisition and Language Learning
13. Otolaryngology
a. External, Middle and Inner Ears - Development, Clinical Anatomy, Physiology and their Disorders

b. Oral cavity, Pharynx, Esophagus - Development, Clinical Anatomy, Physiology and their Disorders
c. Larynx - Development, Clinical Anatomy, Physiology and its Disorders
14. Pediatrics & Genetics/Sign Language/Community Based Rehabilitation
a. Basic concepts and terminologies in Genetics
b. Genetic assessment
c. Genetics in Communication Disorders
d. Basic concepts in Pediatrics - Growth & Development, Nutritional Disorders, Early identification of perinatal and other pediatric disorders
e. Understanding deafness and Manual option (Sign Language) in Indian Scenario
f. Evaluation and Guidance of Manual Form (Sign Language) of Communication in India
g. Indian Sign Language (ISL) in Daily Communication and Skill Development Challenges
h. Methods of Teaching ISL and Factors affecting ISL
i. Introduction to Community Based Rehabilitation (CBR), Preparing Community and Persons with Disability for CBR
j. Role of Media in Enhancing Community Participation
15. Speech and Drama/Clinical Counselling
a. Field of Speech, Basics of Drama, and 'Speech' in Drama
b. Basics of Clinical Counselling including Stages, Principals, Tools, and Applications
c. Professional Counselling
16. Indian Languages
17. Voice and its Disorders
a. Voice Production and Correlates of Voice
b. Assessment of Voice
c. Voice Disorders and Its Classification Systems
d. Management of Voice Disorders
18. Speech Sound Disorders
a. Basic Concepts of Phonology and Distinctive Features and Acoustic Feature□
b. Assessment and Management of Speech Sound Disorders
19. Diagnostic Audiology- Behavioral Tests, Physiological Tests
a. Overview of Behavioral and Physiological Diagnostic Tests
b. Cochlear, Retrocochlear Pathology and Pseudohypacusis
c. lmmittance Evaluation
d. Auditory Brainstem Response and other Auditory Evoked Potentials
e. Middle and Long Latency Auditory Evoked Potentials
f. Otoacoustic Emissions and Tests of Vestibular Functioning
g. Central Auditory Processing Disorders
h. Vestibular and Tinnitus Assessment
20. Educational Audiology
a. Importance of Early Identification and Different Approaches for Communication
b. Methods ofTeaching Language for Children with Hearing Impairment
c. Educational Placement
d. Educational Problems, Laws and Policies for Educating and Counselling Parents
21. Neurology
a. Essential Neurological Concepts and Relationship between Neurosciences and Speech-Language and Hearing
b. Gross Anatomy and Blood Supply to the Brain
c. Common Causes of Neurological Conditions and Neurological Assessment
d. Common Neurological Conditions Leading to Speech-Language and Hearing Disorders - Sings, Symptoms and Behavioral Characteristics
22. Fluency and its Disorders
a. Fluency and Stuttering
b. Theories, Assessment and Management of Stuttering
c. Other Fluency Disorders
23. Child Language Disorders
a. Overview of Theories of Language Acquisition and Neurological Correlates of Language Development in Children
b. Language Characteristics (Oral and Written) of Developmental and Acquired Language Disorders in Children
c. Management of Children with Language Disorders

24. Rehabilitative Audiology
a. Auditory Learning
b. Speech Reading
c. Management of Tinnitus and Hyperacusis
d. Management of Children with Special Needs and Rehabilitation of Older Adults with Hearing Impairment
25. Research Methods & Statistics, Epidemiology
a. Basics
b. Research Design in Audiology and Speech-Language Pathology
c. Statistics and Data Collection
26. Motor Speech Disorders in Children
a. Neuromotor Organization and Sensorimotor Control of Speech and Motor Speech Disorders
b. Nature, Assessment and Management of Motor Speech Disorders in Children
27. Structural Anomalies and Speech Disorders
a. Cleft Lip and Palate and Associated Problems including their Assessment and Management
b. Velopharyngeal Dysfunction and Assessment
c. Types of Oral and Laryngeal Cancer and Management
d. Anomalies of Tongue and Mandible
28. Amplification Devices
a. Basics and Classification
b. Signal Processing in Hearing Aids
c. Compression in Hearing Aids and other Signal Processing
d. Electroacoustic Measurement of Hearing Aids
29. Pediatric Audiology
a. Development of Human Auditory System
b. Early Identification of Hearing Loss and Hearing Screening
c. Diagnostic Evaluations - Behavioral and Objective Tests
30. Public Speaking/Counselling/Performing Arts
31. Motor Speech Disorders in Adults
a. Introduction to Motor Speech Disorders in Adults
b. Etiologies, Assessment and Management of Dysarthria and Apraxia of Speech
32. Language Speech Disorders in Adults
a. Neurosciences of Adult Language Disorder and Aphasiology
b. Non-Aphasic Language Disorders/Cognitive-Communication Disorders in Adults
c. Assessment of Aphasia and Other Cognitive-Communication Disorders
d. Intervention Strategies for aphasia and Cognitive-Communication Disorders
33. Environmental Audiology and Ecosystems
a. Natural resources -Renewable/Non-renewable, Biodiversity, Conservation
b. Environmental Pollution, Environmental Policies and Practices
c. Human Communities and the Environment and Field Work
d. Environmental Noise -Overview, Types and Effects
e. Audiological Evaluation of Individuals Exposed to Occupational Noise
f. Noise and Vibration Measurements
g. Hearing Conservation
34. Implantable Hearing Devices and Hearing Aid Fitting
a. Hearing Aid Selection and Fitting
b. Hearing Aid Fitting in Different Population, Assistive Listening Devices and Outcome Measures
c. Implantable Hearing Devices
d. Mechano-Acoustic Couplers and its various modifications, Counselling and Troubleshooting
35. Speech-Language Pathology and Audiology in Practice
a. Introduction to Speech-Language Pathology and Audiology in Practice
b. Public Laws Related to Disability
c. Organization and Administration of Speech-Language and Hearing Centers and Public Education
d. Scope and Practice of Tele-Assessment and Tele-Rehabilitation
36. Bi/multilingualism
a. Introduction to the language families of the world and India
b. Issues related to second language acquisition & factors influencing it

c. Inter-language theory, language transfer and linguistic interference
d. Differences between first and second languag.e acquisition/l_earning Bilingualism/Multilingualism
e. Metaphonology
f. Writing systems -types of writing
g. History of writing systems
h. Indian writing systems