

GOVERNMENT OF JAMMU AND KASHMIR
J&K SERVICES SELECTION BOARD

Hema Complex, Sector -3, Channi Himmat, Jammu

www.jkssb.nic.in

NOTICE

J&K Services Selection Board has advertised various posts vide **Advertisement Notification No. 02 of 2021 dated 26-03-2021**. Accordingly, the syllabi for the posts, advertised vide aforementioned advertisement notification is hereby notified as per the details given in **Annexure "A" to "Q"** to this notice.

The candidates are also intimated there shall be negative marking for wrong answer (-0.25 for each wrong answer) attempted in the said examination.

(Sachin Jamwal) KAS
Secretary
J&K Services Selection Board
Jammu

No. SSB/Secy/Syllabus/2021/3960-63

Dated: 25.05.2021

Copy to the: -

1. Director Information & Public Relations, Department of Information & Public Relations J&K Government J&K Government, Jammu with the request to get the said notification published in at least three leading local newspaper of Jammu/Srinagar for three consecutive dates.
2. Private Secretary to the Chairman, JKSSB for information of the Chairman.
3. I/c Web site.
4. Syllabus file.

Syllabi for the posts advertised vide Advertisement Notification No 02 of 2021 dated 26-03-2021

S.No	Advertisement No.	Item No.	Department	Sub Deptt/Appointing Authority.	Name of the post	Cadre of the post	Annexed as Annexure
1	02 of 2021	201	Health & Medical Education	(GMC Srinagar)	Speech Therapist	Div.Kashmir	A
2	02 of 2021	228	Health & Medical Education	(GMC Srinagar)	Junior Laboratory Technician	Div.Kashmir	B
3	02 of 2021	200	Health & Medical Education	(GMC Srinagar)	Laboratory Technologist	Div.Kashmir	
4	02 of 2021	164	Health & Medical Education	(GMC Jammu)	Laboratory Technician	Div.Jammu	
5	02 of 2021	197	Health & Medical Education	(GMC Srinagar)	Laboratory Technician	Div.Kashmir	
6	02 of 2021	222	Health & Medical Education	(GMC Srinagar)	Laboratory Assistant	Div.Kashmir	
7	02 of 2021	186	Health & Medical Education	(GMC Jammu)	Injector	Div.Jammu	
8	02 of 2021	394	Health & Medical Education	(Director Health Services Kashmir)	Jr. Lab Assistant	Ganderbal	
9	02 of 2021	396	Health & Medical Education	(Director Health Services Kashmir)	Jr. Lab Assistant	Pulwama	
10	02 of 2021	398	Health & Medical Education	(Director Health Services Kashmir)	Jr. Lab Assistant	Kulgam	
11	02 of 2021	400	Health & Medical Education	(Director Health Services Kashmir)	Jr. Lab Assistant	Shopian	
12	02 of 2021	402	Health & Medical Education	(Director Health Services Kashmir)	Jr. Lab Assistant	Baramulla	
13	02 of 2021	403	Health & Medical Education	(Director Health Services Kashmir)	Jr. Lab Assistant	Bandipora	
14	02 of 2021	177	Health & Medical Education	(GMC Jammu)	Senior Laboratory Assistant	Div.Jammu	
15	02 of 2021	389	Health & Medical Education	(Director Health Services Kashmir)	Jr. Lab Assistant	Budgam	
16	02 of 2021	334	Health & Medical Education	(Director Health services Jammu)	Jr.Lab Tech.	Udhampur	
17	02 of 2021	362	Health & Medical Education	(Director Health services Jammu)	Jr.Lab Tech.	Ramban	
18	02 of 2021	317	Health & Medical Education	(Director Health services Jammu)	Jr.Lab Tech.	Jammu	

19	02 of 2021	183	Health & Medical Education	(GMC Jammu)	Receptionist	Div.Jammu	C
20	02 of 2021	229	Health & Medical Education	(GMC Srinagar)	Receptionist	Div.Kashmir	
21	02 of 2021	393	Health & Medical Education	(Director Health Services Kashmir)	Jr. Theatre Assistants	Ganderbal	D
22	02 of 2021	310	Health & Medical Education	(Director Health services Jammu)	Jr.Theatre Technician/OT Tech.	Jammu	
23	02 of 2021	329	Health & Medical Education	(Director Health services Jammu)	Jr.Theatre Technician/OT Tech.	Udhampur	
24	02 of 2021	338	Health & Medical Education	(Director Health services Jammu)	Jr.Theatre Technician/OT Tech.	Reasi	
25	02 of 2021	358	Health & Medical Education	(Director Health services Jammu)	Jr.Theatre Technician/OT Tech.	Ramban	
26	02 of 2021	366	Health & Medical Education	(Director Health services Jammu)	Jr.Theatre Technician/OT Tech.	Samba	
27	02 of 2021	171	Health & Medical Education	(GMC Jammu)	Junior Theatre Assistant	Div.Jammu	
28	02 of 2021	215	Health & Medical Education	(GMC Srinagar)	Junior Theatre Assistant	Div.Kashmir	
29	02 of 2021	176	Health & Medical Education	(GMC Jammu)	Telephone Operator	Div.Jammu	E
30	02 of 2021	165	Health & Medical Education	(GMC Jammu)	E.C.G Technician	Div.Jammu	F
31	02 of 2021	390	Health & Medical Education	(Director Health Services Kashmir)	Jr. X-Ray Technician	Ganderbal	
32	02 of 2021	320	Health & Medical Education	(Director Health services Jammu)	Jr.X-Ray Tech.	Jammu	
33	02 of 2021	336	Health & Medical Education	(Director Health services Jammu)	Jr.X-Ray Tech.	Udhampur	
34	02 of 2021	344	Health & Medical Education	(Director Health services Jammu)	Jr.X-Ray Tech.	Reasi	
35	02 of 2021	364	Health & Medical Education	(Director Health services Jammu)	Jr.X-Ray Tech.	Ramban	
36	02 of 2021	411	Health & Medical Education	(Indira Gandhi Govt Dental college Jammu)	X-Ray Assistant	Div.Jammu	
37	02 of 2021	220	Health & Medical Education	(GMC Srinagar)	Dark Room Assistant	Div.Kashmir	
38	02 of 2021	175	Health & Medical Education	(GMC Jammu)	X-Ray Assistant	Div.Jammu	
39	02 of 2021	218	Health & Medical Education	(GMC Srinagar)	X-Ray Assistant	Div.Kashmir	
40	02 of 2021	167	Health & Medical Education	(GMC Jammu)	X- Ray Technician/Radiology Technologist/Junior Radiology	Div.Jammu	

					Technician/Radiology Technician/CT Scan Technician		
41	02 of 2021	162	Health & Medical Education	(GMC Jammu)	Artist	Div.Jammu	G
42	02 of 2021	194	Health & Medical Education	(GMC Srinagar)	Artist	Div.Kashmir	
43	02 of 2021	313	Health & Medical Education	(Director Health services Jammu)	Jr.Dental Tech.	Jammu	H
44	02 of 2021	332	Health & Medical Education	(Director Health services Jammu)	Jr.Dental Tech.	Udhampur	
45	02 of 2021	341	Health & Medical Education	(Director Health services Jammu)	Jr.Dental Tech.	Reasi	
46	02 of 2021	350	Health & Medical Education	(Director Health services Jammu)	Jr.Dental Tech.	Doda	
47	02 of 2021	360	Health & Medical Education	(Director Health services Jammu)	Jr.Dental Tech.	Ramban	
48	02 of 2021	368	Health & Medical Education	(Director Health services Jammu)	Jr.Dental Tech.	Samba	
49	02 of 2021	376	Health & Medical Education	(Director Health services Jammu)	Jr.Dental Tech.	Rajouri	
50	02 of 2021	383	Health & Medical Education	(Director Health services Jammu)	Jr.Dental Tech.	Poonch	
51	02 of 2021	315	Health & Medical Education	(Director Health services Jammu)	Jr.Opth.Tech.	Jammu	I
52	02 of 2021	326	Health & Medical Education	(Director Health services Jammu)	Jr.Opth.Tech.	Kathua	
53	02 of 2021	351	Health & Medical Education	(Director Health services Jammu)	Jr.Opth.Tech.	Doda	
54	02 of 2021	355	Health & Medical Education	(Director Health services Jammu)	Jr.Opth.Tech.	Kishtwar	
55	02 of 2021	370	Health & Medical Education	(Director Health services Jammu)	Jr.Opth.Tech.	Samba	
56	02 of 2021	378	Health & Medical Education	(Director Health services Jammu)	Jr.Opth.Tech.	Rajouri	
57	02 of 2021	163	Health & Medical Education	(GMC Jammu)	Junior Occupational Therapist	Div.Jammu	J
58	02 of 2021	196	Health & Medical Education	(GMC Srinagar)	Junior Occupational Therapist	Div.Kashmir	
59	02 of 2021	221	Health & Medical Education	(GMC Srinagar)	Anaesthesia Assistant / Anaesthesia Technician	Div.Kashmir	K
60	02 of 2021	204	Health & Medical Education	(GMC Srinagar)	Social Worker/Medical Social Worker	Div.Kashmir	L
61	02 of 2021	408	Health & Medical Education	(Indira Gandhi Govt Dental college	Library Asstt	Div.Jammu	M

				Jammu)				
62	02 of 2021	287	Health & Medical Education	(FW,MCH and Immunization)	Junior Health Inspector.(Computer)	Jammu	N	
63	02 of 2021	288	Health & Medical Education	(FW,MCH and Immunization)	Junior Health Inspector.(Computer)	Reasi		
64	02 of 2021	289	Health & Medical Education	(FW,MCH and Immunization)	Junior Health Inspector.(Computer)	Rajouri		
65	02 of 2021	290	Health & Medical Education	(FW,MCH and Immunization)	Junior Health Inspector.(Computer)	Anantnag		
66	02 of 2021	291	Health & Medical Education	(FW,MCH and Immunization)	Junior Health Inspector.(Computer)	Kulgam		
67	02 of 2021	292	Health & Medical Education	(FW,MCH and Immunization)	Junior Health Inspector.(Computer)	Kupwara		
68	02 of 2021	293	Health & Medical Education	(FW,MCH and Immunization)	Junior Health Inspector.(Computer)	Baramulla		
69	02 of 2021	319	Health & Medical Education	(Director Health services Jammu)	Dhobi	Jammu		
70	02 of 2021	328	Health & Medical Education	(Director Health services Jammu)	Dhobi	Kathua		
71	02 of 2021	335	Health & Medical Education	(Director Health services Jammu)	Dhobi	Udhampur		
72	02 of 2021	352	Health & Medical Education	(Director Health services Jammu)	Dhobi	Doda		
73	02 of 2021	357	Health & Medical Education	(Director Health services Jammu)	Dhobi	Kishtwar		
74	02 of 2021	363	Health & Medical Education	(Director Health services Jammu)	Dhobi	Ramban		
75	02 of 2021	372	Health & Medical Education	(Director Health services Jammu)	Dhobi	Samba		
76	02 of 2021	380	Health & Medical Education	(Director Health services Jammu)	Dhobi	Rajouri		
77	02 of 2021	384	Health & Medical Education	(Director Health services Jammu)	Dhobi	Poonch		
78	02 of 2021	190	Health & Medical Education	(GMC Jammu)	Barber	Div.Jammu		
79	02 of 2021	235	Health & Medical Education	(GMC Srinagar)	Dhobi	Div.Kashmir		
80	02 of 2021	180	Health & Medical Education	(GMC Jammu)	Junior Pharmacist/Medical Assistant	Div.Jammu		O
81	02 of 2021	224	Health & Medical Education	(GMC Srinagar)	C.S.S.D. Assistant	Div.Kashmir		
82	02 of 2021	226	Health & Medical Education	(GMC Srinagar)	Junior Pharmacist /Medical	Div.Kashmir		

					Assistant	
83	02 of 2021	255	Health & Medical Education	(FW,MCH and Immunization)	Theatre Assistant	Udhampur
84	02 of 2021	256	Health & Medical Education	(FW,MCH and Immunization)	Theatre Assistant	Ganderbal
85	02 of 2021	257	Health & Medical Education	(FW,MCH and Immunization)	Theatre Assistant	Baramulla
86	02 of 2021	311	Health & Medical Education	(Director Health services Jammu)	Jr.Pharmacist	Jammu
87	02 of 2021	324	Health & Medical Education	(Director Health services Jammu)	Jr.Pharmacist	Kathua
88	02 of 2021	330	Health & Medical Education	(Director Health services Jammu)	Jr.Pharmacist	Udhampur
89	02 of 2021	339	Health & Medical Education	(Director Health services Jammu)	Jr.Pharmacist	Reasi
90	02 of 2021	348	Health & Medical Education	(Director Health services Jammu)	Jr.Pharmacist	Doda
91	02 of 2021	374	Health & Medical Education	(Director Health services Jammu)	Jr.Pharmacist	Rajouri
92	02 of 2021	381	Health & Medical Education	(Director Health services Jammu)	Jr.Pharmacist	Poonch
93	02 of 2021	409	Health & Medical Education	(Indira Gandhi Govt Dental college Jammu)	Anaesthesia Asstt.	Div.Jammu
94	02 of 2021	189	Health & Medical Education	(GMC Jammu)	FMPHW/ANM	Div.Jammu
95	02 of 2021	234	Health & Medical Education	(GMC Srinagar)	ANM / Dai	Div.Kashmir
96	02 of 2021	244	Health & Medical Education	(GMC Srinagar)	Basic Health Worker	Div.Kashmir
97	02 of 2021	272	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Jammu
98	02 of 2021	273	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Samba
99	02 of 2021	274	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Kathua
100	02 of 2021	275	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Udhampur
101	02 of 2021	276	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Ramban
102	02 of 2021	277	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Poonch
103	02 of 2021	278	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Srinagar

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104	02 of 2021	279	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Ganderbal	
105	02 of 2021	280	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Pulwama	
106	02 of 2021	281	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Anantnag	
107	02 of 2021	282	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Kulgam	
108	02 of 2021	283	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Kupwara	
109	02 of 2021	284	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Shopian	
110	02 of 2021	285	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Budgam	
111	02 of 2021	286	Health & Medical Education	(FW,MCH and Immunization)	Female MPH	Baramulla	
112	02 of 2021	321	Health & Medical Education	(Director Health services Jammu)	MMPH	Jammu	
113	02 of 2021	322	Health & Medical Education	(Director Health services Jammu)	FMPH	Jammu	
114	02 of 2021	345	Health & Medical Education	(Director Health services Jammu)	FMPH	Reasi	
115	02 of 2021	346	Health & Medical Education	(Director Health services Jammu)	MMPH	Reasi	
116	02 of 2021	373	Health & Medical Education	(Director Health services Jammu)	FMPH	Samba	
117	02 of 2021	166	Health & Medical Education	(GMC Jammu)	Junior Physiotherapist	Div.Jammu	Q

**(Sachin Jamwal) KAS
Secretary
J&K Services Selection Board
Jammu**

ANNEXURE "A"

SYLLABUS

Marks :-120
Time :- 2.00 Hours

➤ **Audiology**

(Marks 25)

✓ **Sound and Hearing**

- Definition of sound
- Generation and transmission of sound
- Physical and psychological attributes of sound
- Range of human hearing
- Structure of the ear, different parts of the ear
- Age-wise behavioral responses to sound
- Description of hearing
- Functions of hearing, role of hearing in learning

✓ **Hearing Loss**

- Definition and meaning of hearing loss
- Causes and types of hearing loss
- Effects of hearing loss
- Signs & symptoms of hearing loss
- Prevention of hearing loss
- Early identification and its importance
- Associated problems

✓ **Evaluation of hearing**

- Methods of testing hearing, tuning fork, audiometry, parts of an audiometer, audiogram
- Procedure for obtaining an audiogram, different types of audiograms
- Factors that affect hearing evaluation
- Informal testing, methods of screening and different conditions for hearing testing, use of different stimuli in rural set/ups.
- Care and maintenance of equipment, preparation and maintenance of check list
- List of equipment, specifications for the same


✓ **Hearing aids & Earmolds**

- Definition of hearing aid
- Need for a hearing aid
- Different parts of a hearing aid
- Different types of hearing aids
- Earmold, role of earmold, making custom earmolds
- Selection of conventional hearing aids

✓ **Counseling on use, troubleshooting and rehabilitation**

- Use, care and maintenance of hearing aid
- Trouble shooting and minor repairs of hearing aids
- **Counselling –**

 On hearing aid acceptance, use and care

 On auditory learning

- 📖 On speech and language intervention
- 📖 Home training

- Role of Speech and Hearing technician in relation to the school for the deaf/retarded, special schools for spastics speech and hearing units and centres, other rehabilitation centres, P.H.Cs.
- Organization of community awareness programmes, exhibition and selecting the materials required, parent meeting. Team approach and role of speech and hearing technician in the team.
- Early identification, Therapy and follow up
- Government schemes available for the welfare of the handicapped
- List of addresses for referral points

➤ Speech and Language Pathology

(Marks 25)

✓ **Introduction to communication, language & Speech.**

- Definitions of communication, language & speech
- Interrelation between speech, language & hearing
- Prerequisites of communication: speaker, listener, speech chain
- Functions of communication
- Types of language: Non-verbal: signs, symbols, gesture. Verbal: speech
- Parameters of language: orientation to phonology, semantics, syntax & pragmatics
- Parameters of Speech: voice, articulation, fluency, prosody
 - 📖 Voice: pitch, loudness, quality;
 - 📖 -Fluency: rate, continuity, effort;
 - 📖 -Prosody: stress, intonation & rhythm

✓ **Speech mechanism & speech production**

- Structure and functions of the speech mechanism

- 📖 Nervous system
- 📖 Respiratory system
- 📖 Phonatory system
- 📖 Resonatory system
- 📖 Articulatory system

- Description of the speech sounds

- 📖 Voicing
- 📖 Manner of articulation
- 📖 Place of articulation

✓ **Acquisition / Development of Language and speech**

- Characteristics of normal speech & language and communication
- Stages in the development of language and the important milestones
- Stages in the acquisition of speech sounds/ phonology & important milestones
- Development of communication
- Factors affecting the acquisition of speech, language & communication

✓ **Disorders of speech and Language**

- Classification of the disorders
- Disorders of language: general behaviours, language characteristics: expressive & receptive
 - ✚ Mental retardation
 - ✚ Autism
 - ✚ Cerebral palsy
 - ✚ Childhood aphasia
 - ✚ Attention Deficit disorder

✓ **Disorders of speech : General Characteristics, symptoms**

- Disorders of speech: general characteristics, symptoms
 - ✚ Disorders of voice: pitch, quality
 - ✚ Disorders of articulation: structural, neurological, environmental
 - ✚ Disorders of fluency: NNF, stuttering, neurogenic stuttering, cluttering

✓ **Prevention and Early identification of communication disorders**

- Definition, Types of prevention
- General preventive measures
- Checklist/ Tools for prevention and Early identification of communication disorders
- Guidance to parents
- Screening tools/ High Risk Register

➤ **Basic Medical Sciences related to speech & Hearing. (Marks 15)**

- ✓ General *introduction*, definitions. Coronal / saggital / plane) Planes. Definition of anatomy, morphology, physiology, histology, embryology.
- ✓ Definition of Cell and organelles, tissue, organ system, specialized tissues like nervous tissue, vascular tissue, muscle and bone tissue
- ✓ Nervous system: Definition of neuron, synapse, reflex action, bio electrical phenomena, action potential, depolarisation, division and functions of the nervous system, brain – general lobes, reticular formations, basal ganglia, cerebellum, circle of willis, cranial nerves, spinal cord, CSF – formation & flow.
- ✓ Circulatory system: Definition of capillaries, arteries, veins, cardiac cycle, blood brain barrier, aneurysm, vascular shock – its reference to aphasia / speech disorders.
- ✓ Respiratory system: General outline, detailed study of trachea, larynx and nasopharynx, mechanism of respiration – internal and external influence, nervous control – vital capacity – tidal volume, residual air, artificial respiration (in brief).
- ✓ Definition of inflammation, infection, tumor – benign & malignant, tissue healing
- ✓ Genetics :introduction – structure of DNA and RNA, karyotyping, family tree (pedigree chart), symbolic representation , inheritance, autosomal dominant, autosomal recessive, sex chromosomal disorders, structural aberrations, mutation (in brief).
- ✓ Endocrine system : Definition of harmone, functions of thyroid hormone, growth harmone, androgen, testosterone and its influence in voice disorders.
- ✓ Anatomy & Physiology of external, middle & inner ear, auditory pathways, vestibular pathway. Diseases of the external middle and inner ear leading to hearing loss: Congenital malformations, traumatic lesions, infections, management of middle ear and Eustachian tube disorders.
- ✓ Other causes of hearing loss – Facial paralysis, Tumors of the cerebello- pontine angle, Acoustic neuroma. Infection and management of inner ear diseases. Cochleo-vestibular diseases and its management.

Anatomy & Physiology of pharynx & oro-peripheral structures Causes of speech disorder, Disorders of the mouth, Tumors of the jaw and oral cavity, nasopharynx and pharynx, pharyngitis, Diseases of tonsils and adenoids.

- ✓ Oesophageal conditions: Congenital abnormality – Atresia, Tracheo-oesophageal fistula, Stenosis, Short oesophagus. Neoplasm – Benign, Malignant, Lesions of the oral articulatory structures like cleft lip, cleft palate, submucosal cleft, Velopharyngeal incompetence.
- ✓ Anatomy & Physiology of larynx – physiology of phonation / physiology of respiration.
- ✓ Congenital diseases of the larynx – difference between an infant and an adult larynx. Stridor – causes of infantile stridor. Disorders of structure – Laryngomalacia, Bifid epiglottis, Laryngeal web, Atresia, fistula, Laryngeal cleft, Tumors and Cysts, Laryngitis, Laryngeal trauma and Stenosis. Neuromuscular dysfunctions of the larynx – Vocal cord palsy, Spastic dysphonia, Hypothyroidism, gastro oesophageal reflux disorders, Laryngectomy, artificial larynx, oesophageal speech, tracheo oesophageal puncture.

➤ **Psychology**

(Marks 15)

- ✓ Meaning and definition of psychology - relevance to speech, hearing and language. Child development: motor, emotional, cognitive - intellectual and social, stages & relevance.
- ✓ Mental retardation: definition, causes, assessment and psycho/social and educational implications. Developmental skills - helping the child acquire age appropriate developmental skills. Psychological problems associated with speech and hearing disorders - temper tantrum, hyperactive behaviour, withdrawal tendency, aggressive behaviour, neuroses like phobia, autistic behaviour.
- ✓ Psychological testing - aims, factors affecting testing, developmental schedules, IQ test and their importance.
- ✓ Attitude of parents and of the client towards handicap and rehabilitation procedures.
- ✓ Behaviour therapy and play therapy.

➤ **Community Based Rehabilitation**

(Marks 15)

- ✓ Assessment of communication disorders
 - 📌 **Case history** - Importance of case history, Procedure for obtaining case history, Methods of gathering information, Specific information to be collected w.r.t various disorders, Relevance of information to be included in case history, Identification, history and description of problem, Counter check of information gathered, Do's and Don'ts while taking case history
 - 📌 Arriving at provisional diagnosis by collecting and collating different information, Measures to be taken when contradictory findings are found
 - 📌 Making appropriate referrals to other relevant professionals, Ways of referral- reporting & requesting and informing parents/caregivers on diagnosis and prognosis.
 - 📌 Role of observation therapy in diagnosis and prognosis
- ✓ Management of communication disorders
 - 📌 Team approach, Members of the Team: speech and hearing professionals, medical specialists, psychologists, special educators, regular school teachers, social workers, village leader and prospective employer/ institutions, Details of other referral points, Role of speech & hearing technicians in the team.
 - 📌 Bases of speech & language therapy and hearing intervention-common procedures in therapy
 - 📌 Planning speech therapy programme for articulation, voice, fluency, language Deviations and delays (including material and instruments needed), Implications and impact of hearing loss /mental retardation/ cerebral palsy

- ✚ Analysing needs of the patients, planning short term and long term goals, activities & teaching aids for therapy, assessing progress, Recognizing small changes in progress
 - ✚ Imparting guidelines to the parents for practice of activities at home, Training parents as equal partners, Importance of speech and language stimulation
 - ✚ Reinforcers, methods of reinforcement
 - ✚ Tips on parent counseling and guidance
- ✓ Auditory training & speech reading
- ✚ Acceptance of hearing aid by self and family
 - ✚ Auditory training- need and its importance. General principles, steps in auditory training, Materials needed, Assessment of auditory performance, factors affecting auditory training-age of the child, type of hearing loss, intensity of stimuli and others. Methods of recording auditory response and progress, Games and activities for individual and group auditory training.
 - ✚ Speech reading, General principles, Methods of speech reading, Speech reading, cued speech, activities for speech reading in day to day communication, Specific planning for speech reading lessons, Factors (environment, speaker, language reader) affecting speech reading.
- ✓ Non/verbal communication
- ✚ Augmentative and alternative communication (AAC)- Definition
 - ✚ Types of AAC:
 - ✚ Aided- Definition and types of symbols with examples (objects, pictures, orthography, blissymbols), Low technology (communication boards, communication wallets, communication books & others) and high technology aids (few softwares), Dedicated and Nondedicated systems, Adaptation of aided systems to individual needs.
 - ✚ Unaided- Definition and types of symbols with examples (manual signs, pantomime, gestures, facial expressions), Introduction to sign languages: Finger spelling & basic vocabulary in American Sign Language, Indian Sign Language – basic vocabulary.
- ✓ Record keeping
- ✚ Different records (administrative and clinical) to be maintained, Documentation of diagnostic, clinical & referral reports.
- **Education for Children with Special Needs** **(Marks 25)**
- ✓ Introduction to education
- ✓ Education of children with special needs
- ✓ Educational problems faced by children with
- ✚ Hearing impairment
 - ✚ Mental retardation
 - ✚ Other communication disorders
- ✓ Approaches in teaching language to children with communication disorders
- ✚ verbal approaches
 - natural and structured methods
 - unisensory and multisensory methods
 - ✚ non-verbal approaches
- ✓ Selection of appropriate communicational approaches for children with communication disorders

ANNEXURE – “B”

Marks :-120
Time :- 2.00 Hours

Unit – 1: Body Structure & Function (28 Marks)

1. Anatomy

- Different Parts of the human body, Common Anatomical Terms, Anatomical Positions and important planes, Tissue of the body, classification and function.
- Structure, function mechanism - Skeletal System, Gastro-Intestinal System, Genito-Urinary System, Respiratory System, Cardio-Vascular System, Nervous System, Loco-Motor System.

2. Physiology

- Blood- Composition and General function, Blood group, ABO and Rh, basis for classification, basis for determination, importance of Blood Groups.
- Structure, function mechanism - Cardio-vascular System, Respiratory System, Excretory System, Skin, Digestive System, Endocrine Glands, Reproductive System, Cerebrospinal fluid, Formation, composition and functions.

Unit - 2: Basic Laboratory Techniques (42 Marks)

1. Laboratory Management & Ethics

- Role of the Laboratory in the Health Care Delivery System, Types of Diseases, Process of Diagnosis, Laboratory at different levels, Duties and responsibilities of Laboratory personnel.
- Laboratory Service in the Health care Delivery System in India, Voluntary Health Organizations in India.
- Laboratory Planning, Guiding Principles for planning Hospital laboratory Services, Laboratory Organisation, Components and functions of a laboratory.

2. Cytology & Microbiology

- Description of cytology in detail, Fixation used in cytology, Dry Fixation and Wet Fixation, Stains used in Cytology, BLF Cytology, Sex Chromatin staining in Cytology.
- Microscope, Classification and Morphology of Bacteria, Staining of Bacteria, Cultivation of Micro-Organisms, Identification of Bacteria, Gram Negative Bacilli, Gram Positive Bacilli, Antibiotic Sensitivity test.

3. Histo-Pathology

- Sections of Pathology, Chemical used in Tissue Processing, Decalcification, Methods of Decalcification & Decalcification of Bones, Procedure of Embedding tissue in Paraffin Wax, Procedure of Paraffin Wax Tissue Block, Various Instruments used in Microtomy.
- Tissue Processing in Histopathology, Automatic Tissue Processor and its uses in detail, Tissue Staining, Steps of Tissue Staining, Tissue Grossing.
- Autopsy Technique, Assisting in Autopsy, Preservation of organs & Processing of Tissues.
- Waste disposal and safety in Laboratory
-

4. **Blood Banking**

- Types of Blood Banking, Process of Coagulation, Rh – Factor, Erythroblastosis Foetalis, MN – Group System.
- Human Blood Group Antigens, their inheritance and antibodies
- ABO Blood Group System , Rh Blood Group System
- Techniques of Grouping and Cross Matching
- Blood Collection, Blood Transfusion, Coomb's Test
- Blood Donor/Receptor, Procedure of Blood Collection from a donor
- Precautions to be taken before Blood Collection, Storage of Blood, Anticoagulants used in Blood banks

5. **Clinical Pathology**

- Collection of Blood, Composition of Blood, Types of Anti – Coagulant Tubes and their Uses, RBC's and various process of counting, Erythropoiesis, Haemocytometer and its uses, Types of WBC's and process of counting, PBF (Peripheral Blood Film) its preparation, Staining.
- Various Types of Romanovsky Stains and Uses, Leishman's Stains, Platelet Count. Process of counting manually, Absolute Eosinophil count & its estimation, ESR and various methods of estimation, PCV and its procedure for conducting.
- Microscope, Parts and Functions in Laboratory, Haemoglobin in detail, Centrifuge and its uses, Haemometer Set.

6. **Blood & Urine Examination**

- Urine, composition of Urine in detail, Urine Examination under Microscope, Various methods of sampling Urine for conducting various examinations like Albumin, Sugar, Acetone, Bile pigmentation, Bile Salt, Urobilinogen, Occult Blood, KFT etc, Physical Examination – Colour, Reaction, Odour, Specific gravity Urinary Volume.
- Composition of Blood ,Blood and cerebrospinal Fluid functions of Blood & CSF, Complete blood count, Blood sugar test, Various methods of sampling blood for conducting various examinations.

Unit – 3: Basics of Patient Care & Health Assistance (10 Marks)

1. **Public Health & Hygiene**

- Concept of public health, Various Health Committees, Health and Family Planning Organisations setup at the National, the State, the District and Block, Levels.

2. **Home Nursing & Health Education**

- Introduction to Nurse, Sick Room, Bed Making, Patient's Toilet, Diet, Medicines, Special Conditions & Treatments.
- Care of the Aged and Long-term Patient, Care of the Mentally ill Healthy Patient, Nursing in Special Diseases.
- Immunity & Infectious Diseases, Special Drugs-their Control & Administration, Shock and Blood Transfusion, The Hospital Services, Childbirth and its Management.

- Principles, ethics, attributes of health educator, essential steps and introduction to the main methods in health education. History development and growth of health education in India, Various methods of Health Education.

3. **Community Pharmacy and Management**

- Community Pharmacy Practice, Prescription and prescription handling, Patient counselling, Communication skills, Medication Adherence, Health Screening Services, Over the Counter (OTC) medications, Responding to symptoms/minor ailments, Community Pharmacy Management.

Unit – 4: Clinical Duties (23 Marks)

1. **Sterilization & Disinfection**

- Physical, Chemical and Mechanical Methods, Disposal of Contaminated Media, sterilization of syringes, glass wares, apparatus.

2. **Examination and Surgical Procedures**

- Procedures - urinalysis, strep tests, blood pressure checks, weight checks, electrocardiograms, venipuncture and injections. Pap smear, mammography, ECG, placing IV's, educating patient about procedure

3. **First Aid**

- Introduction and history of the Red-Cross, Dressing and Bandages, Cardio-pulmonary resuscitation, Different methods of artificial respiration, Transport of injured persons.
- Procedures during common conditions - Fractures and Dislocation, Epilepsy and Hysteria, Poisons including food, Cramps, Frost – Bite, Bites and Stings, Snake Bite, Dog Bite, Unconsciousness and Fainting.

4. **Pharmacotherapeutics**

- Drug therapy of various diseases, Medication counselling points, etiopathogenesis, disease management.
- Pharmacological management of the diseases associated with Cardiovascular System, Respiratory System, Endocrine System, CNS, GI Disorders, Hematological disorders, Infectious diseases, Musculoskeletal disorders, Dermatology, Disorders related to Women's Health.

Unit – 5: Technical Duties / Administrative Duties (17 Marks)

1. **Surgical Instruments**

- Surgical Instruments – name & uses, Instruments for general surgery, Ophthalmic Surgery, Operations on the chest, Gynecological and Obstetric Operations, Orthopaedic Operations, Neuro-Surgical Operations, on the Vascular System, Trauma Surgery.

2. **Preparation of Instrument Trays**

- Major procedures tray, Basic / Minor procedures tray, Thyroid tray, Long instruments tray, Genitourinary trays, Thoracic trays, Cardiovascular trays, Orthopaedic trays, neurologic procedure trays, ENT trays, Ophthalmic trays, Pediatric trays,

3. Protection of patient in surgery

- Preparation of patient for operation, Pre and Post-operative patient care, Psychological support of the surgical patient.
- Admission Procedure, Transfer Procedure, Environmental Controls, Electro surgery, Operative Records, Counting Procedure, Emergencies and Disasters.

4. Safety measures in Operation theatre

- Body mechanic, Fatigue factors, Safety measures – Radiation safety, Infection control, Chemical hazards, Chemotherapy
- Waste disposal and safety in operation theatre.

5. Record Keeping

- Introduction to store records, Clerical procedure, Inward section Records and procedures in main stores, classification and codifications, keeping of stocks books, preparation of indent and methods of storing drugs.
- Different types of health care information system, Electronic medical records, Electronic health records, filling patients' medical records, filling insurance form, arranging for hospital admission/ laboratory services, scheduling appointments, bill handling.

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Annexure "C"

Marks :-120
Time :- 2.00 Hours

ITEM GRID AND SYLLABUS:

	GRID	TOTAL NUMBER OF QUESTIONS
APTITUDE	General English	20
	General knowledge and current affairs (India)	15
	<u>General knowledge with special reference to J&K</u>	5
	Numerical and Reasoning Ability	15
	Basic Concepts of Computers	5
	TOTAL MARKS (APTITUDE)	60
<hr/>		
TECHNICAL	TECHNICAL QUESTIONS	60
	TOTAL MARKS	120

DETAILED SYLLABUS INDICATED BELOW FOR *APTITUDE* AND *TECHNICAL*

APTITUDE SYLLABUS

GENERAL ENGLISH

- Articles
- Clauses
- Pronouns
- Homonyms/ homophones
- Tenses
- Clauses
- Punctuation
- Synonyms and antonyms
- Analogies
- Idioms and phrases
- Uses of Prepositions

GENERAL KNOWLEDGE AND CURRENT AFFAIRS (INDIA)

- Important dates in Indian History / Freedom struggle, different dates and events
- First in world (Adventure, Sports, Discoveries). First in India (Adventure, Sports, Discoveries)
- Popular names of Personalities (Religion, Politics, Scientific discoveries, Geographical, Sports, History)
- The Newspaper world – (Current Dailies & Weeklies of India)
- Books & Authors – General
- Languages
- Capitals & Currencies
- United Nations Organizations –
Veto Powers

No. of Countries as its Members

Principal organs and their functions
- SAARC, ASEAN
- Everyday Science
- World famous Awards - (1. in Science)
(2. in Literature)
(3. in Sports)
- National Awards - (1. in Science)
(2. in Literature)
(3. in Sports)
- The world of Sports
- Climate & Crops in India
- Democratic institutions
- Forms of Government
- Political & Physical divisions of world & India
- Important rivers & Lakes in India
- Current Events of National and International Level
- Role of Mathematics in Economics
- Agriculture in economic development; Industrialization and economic development
- Indian Foreign Trade
- New economic reforms and growth of foreign trade
- Inflation – Concept and types; Causes and consequences

GENERAL KNOWLEDGE WITH SPECIAL REFERENCE TO J&K

- i) Popular names of personalities (Religion, Politics, Scientific discoveries, Geographical, Sports, History)
- ii) Constitution of India - Formation, Fundamental rights, Directive principles.
- iii) 73rd amendment of constitution of India.
- iv) Centrally Sponsored Schemes- Guidelines and objectives.
- v) Important Tourist Destinations.
- vi) History of J&K- places and their importance.
- vii) Sustainable Development Goal.

- viii) Agriculture in economic development, industrialization and economic development.
- ix) Panchayati Raj Act, 1989 (as amended upto October, 2018 and rules)
- x) Climate and crops in J&K and India.
- xi) Current events of Local, National and International importance.

NUMERICAL AND REASONING ABILITY

The candidates will be tested primarily on the fundamental mathematical concepts and application oriented reasoning. The broad areas will include the following;

Basic Arithmetic:

- Number System
- Percentage
- Average
- Profit & Loss
- Ratio & Proportion
- Speed, Distance and Time
- Mathematical reasoning

Reasoning ability:

- Number series
- Letter series
- Coding decoding
- Direction sense
- Blood relations
- Statements and conclusions
- Logical Reasoning
- Mental Reasoning

BASIC CONCEPTS OF COMPUTERS

The candidates' understanding of the concepts of computers and its application will be tested and it will broadly cover the following:

- Computer terminology
- Hardware and Software
- Storage and Operating systems
- Safety and Security
- E-mail and Internet Usage

TECHNICAL SYLLABUS

- Front office operation
- Basic food production
- Basic food and beverage service
- Nutrition food science

- Health hygiene
- Accommodation operation
- Quantity food production
- Food and beverage management
- Quality food production
- Beverage operations
- Principles of management
- Principles of accounting
- Hotel maintenance
- Environmental studies
- Advanced food production
- Marketing sales management
- Advance beverage services
- Facility planning
- Hotel law
- Hotel financial management

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ANNEXURE "D"

SYLLABUS

Marks :-120
Time :- 2.00 Hours

➤ Anatomy and Physiology

(Marks 20)

- ✓ Elementary Physics and Chemistry
- ✓ Characteristic of living matter
- ✓ The structure of living matter
- ✓ The Tissues
- ✓ Systems and various parts of human body
- ✓ Development and types of Bones
- ✓ Bones of head & trunk
- ✓ Bones of the limb
- ✓ Joints or Articulations
- ✓ Structure and action of Muscles.
- ✓ The Chief Muscles of the Body
- ✓ The Blood
- ✓ The heart and Blood Vessels
- ✓ The Circulation System
- ✓ The Lymphatic System
- ✓ The Respiratory System
- ✓ The Digestive System
- ✓ The Liver, Billiary System and Pancreas
- ✓ Nutrition and Metabolism
- ✓ Endocrine Glands and Exocrine Glands
- ✓ The Urinary System
- ✓ The Nervous System
- ✓ The Ear
- ✓ The Eye
- ✓ The Skin
- ✓ The Reproductive System etc.

Surgical Instruments and Surgical Procedures (Marks 50)

- **Pre – Operative Consideration**
 - Psychological support of the surgical patient.
- ✓ **Protection of the Patient in Surgery**
 - Admission Procedure
 - Transfer Procedure Position
 - Environmental Controls
 - Electro-Surgery
 - Operative Records
 - Counting Procedure
 - Sterilization
 - Emergencies and Disasters.

- **Surgical Instruments**
 - Instruments for General Surgery
 - Operation of the face and neck
 - Operations of the Nose, Throat and : Accessory Nasal Sinuses
 - Ophthalmic surgery
 - Sinuses, Ear & throat
 - Operations of the Chest, Operations on the Genito-Urinary Tract
 - Gynecological and Obstetric Operations
 - Orthopedic Operations
 - Neuro-surgical Operations
 - Radium Insertion
 - Traumatic Surgery

- ✓ **Surgical Procedures**

- ✓ **Neck Surgery**

- Thyroidectomy
 - Parathyroidectomy
 - Thyroglossal Cystectomy

- ✓ **Preast Procedures**

- Breast Biopsy
 - Mastectomy

- ✓ **Abdominal Extraintestinal Surgery**

- Abdominal laprotomy
 - Abdominal Hernlography
 - Cholecystectomy
 - Drainage of Pancreatic Cyst (Pseudocyst)
 - Pancreaticoduodectomy (Whipples procedure)
 - Pancreatectomy
 - Dranage of Abscess (es) in the region of liver
 - Hepatic Resection
 - Splenectomy.

- **Gastriubtestinal Surgery**

- Esopghagoscopy
 - Gastroscopy
 - Colonoscopy
 - Sigmoidoscopy
 - Vagotomy and Pyloroplasty
 - Gastrostomy
 - Gastrectomy
 - Small Bowel Resection
 - Cutaneous illeostomy
 - Appendectomy
 - Colostomy

- Closure of colostomy
- Right Hemicolectomy
- Transverse Colectomy
- Anterior Resection of the Sigmoid Colon and Rectum
- Haemorrhoidectomy
- Pilonidal Cystectomy and Sinusotomy
- Theirsch Procedure
- Ripstein Procedure (Prosacral Rectopexy)

✓ **Gynaecologic and Obstetric Surgery**

- Dilatation of the Cervix and Curettage of the Uterus (D&C)
- Conization of the Uterine Cervix
- Therapeutic Abortion by suction Curettage
- Marsupialization of Bartholin's Duct Cyst
- Abdominal Ligabion (Different Procedures)
- Culdoscopy
- Anterior and /or Posterior Colporrhaphy
- Laparoscopy
- Total Abdominal Hysterectomy
- Spingo-Oophorectomy
- Tuboplasty of the Fallopian Tubes
- Pelvic Exenteration
- Caesarian Section.

✓ **Genitourinary Surgery**

- Hypospadias repair
- Epispadias repair
- Penile Implant
- Marshall-Marchetti-Krantz Procedure
- Hydrocolectomy
- Vasectomy
- Vasovasostomy
- Cutaneous Vasostomy
- Spermatoclectomy
- Orchiectomy
- Gystoscopy
- Cystoscopy
- Transurethral Resection of the Prostate
- (TURP) and /or Lesions of the Bladder or Bladder Neck (TURB)
- Open Prostatectomy
- Nephrectomy
- Upper Tract Urolithotomy(Ureterolithotomy, Phelolithotomy, Nephrolithotomy)
cutaneous vvesterstomy
- Llegal conduit
- Extracproeal shock wave Lithotripsy (ESWL)
- Ultrasonic Lithotripsy
- Electrohydraulic Lithotripsy

✓ **Thoracic Procedures**

- Bronchoscopy

- Mediastioscopy
- Segmental Resection of the Lung
- Wedge Resection of the Lung
- Pulmonary Lobectomy
- Pneumonectomy
- Decortication of the Lung
- Insertion of Transvenous Endocardial Pacemaker
- Correction of Pectus
- Excavatum
- Thymectomy

✓ **Cardiovascular Surgery**

- Carotid Endarterectomy
- Abdominal Aortic Procedures (Abdominal Aortic Aneurysmectomy, Abdominal Aortic Endarterectomy) with Aortic Graft
- Femoropopliteal Bypass
- Greater Saphenous vein Ligation and Stripping
- Portosystemic Shunt
- Arteriovenous Shunt
- Arteriovenous Fistula
- Cardiac procedures
- Bypass Surgery (Different Procedures)

✓ **Orthopaedic Surgery**

- Open reduction of a carpal Bone Fracture
- Excision of a Ganglion
- Carpal tunnel Release
- Open reduction of the Humerus
- Open reduction of the Radius and /or Ulna
- Open reduction of an Olecranon process Fracture
- Repair of recurrent Anterior Dislocation of the Shoulder
- Open reduction of Fracture of the Humeral Head (including Humeral Head Prosthesis)
- Internal Fixation of the Hip
- Femoral head Prosthetic Replacement
- Total Hip replacement
- Open reduction of the femoral Shaft
- Triple Arthrodesis of the Ankle
- Total Ankle joint Replacement
- Open reduction of ankle
- Arthrotomy of the Knee
- Excision of Popliteal (Baker's Cyst)
- Total knee replacement
- Open reduction of the Tibial shaft
- Bunionectomy
- Correction of hammer toe Deformity with interphalangeal Fusion
- Metatarsal Head Resection
- Procedure for correction of scoliosis
- Amputation of lower Extremity

✓ **Neurological Surgery**

- Craniotomy
- Cranioplasty
- Transphenoidal Hypophysectomy
- Ventricular Shunts

- Laminectomy
- Excision of a Cervical Intervertebral Disc with fusion, Anterior Approach.

✓ **Plastic Surgery**

- Cleft Lip repair
- Cleft Palate repair
- Reduction of Nasal Fracture
- Reduction of Mandibular Fracture
- Reduction of a Zygomatic Fracture
- Open reduction of an Orbital Floor Fracture
- Rhinoplasty
- Mentoplasty Augmentation
- Blepharoplasty
- Rhytidectomy
- Dermabrasion
- Otoplasty
- Repair of Syndactyly
- Digital Flexor Tendon repair
- Peripheral Nerve repair
- Palmar Fasciectomy
- Reduction Mammoplasty
- Abdominoplasty / Abdominal Liposuction
- Liposuction

✓ **Otorhinolaryngologic (ENT) Surgery**

- Myringotomy
- Mastoidectomy
- Tympanoplasty
- Stapedectomy
- Submucous Resection of the Nasal Septum (SMR) / Septoplasty
- Intranasal Antrostomy / Intranasal Fenestration of the Nasoantral Wall.
- Caldwell-Luo procedure (Radial Drainage of the antrum of the Maxillary Sinuses)
- Nasal Polypectomy
- Drainage of the Frontal Sinus
- Tonsillectomy and Adenoidectomy (T and A)
- Laryngoscopy
- Traheostomy
- Excision of the Submaxillary (Submandibular Gland)
- Parotidectomy
- Laryngectomy
- Radial Neck Dissection
- Excision of lesions of the oral cavity
- (Partial Glossectomy with Marginal Resection of the Mandible)

✓ **Ophthalmic Surgery**

- General Information
- Excision of a Chalazion
- Canthotomy
- Correction of Ectropion
- Blepharoptosis repair
- Lacrimal Duct Probing

- Dacryocystosthinostomy
- Correction of Strabismus
- Esyiscertation of the Globe
- Orbital Exenteration
- Corneal Transplant /Ekeratoplasty
- Cataract Extraction
- Iridectomy
- Trabeculectomy
- Excision of a pterygium
- Repair of Retinal Detachment /Scieral Bucking
- Vitrectomy
- Refractive keratoplasty

✓ **Pediatric Procedures**

- Pediatric General Information
- Pediatric Tracheostomy
- Branchial sinusectomy
- Reparir of Congenital Diaphragmatic Hernia
- Omphalocele Repair
- Pediatric Umblical Herniography
- Reparia of congenital Atrersia of the Esophagus
- Insertion of a central Venous Catheter(Padiatric)
- Pyloromyotomy for congenital Hypertrophic Pyloric Stenosis
- Pediatric Gastrostomy
- Reduction of pediatric intususception
- Pediatric Colostomy
- Pediatric Colorctal Resection for Aganglionic Megacalon/Hirschsprung's Disease
- Repair of Imperforate Anus

ANAESTHESIA

Anaesthesia :

(Marks 10)

- General Information
- General Anaesthesia
- Conduction
- ✓ **General Anaesthesia :**
- ✓ **Conduction Anaesthesia :**
 - Spinal
 - Epidural
 - Caudal
 - Regional
 - Local
 - Topical

- ✓ **Methods for Preparation of the Patients for Anaesthesia**
 - Methods and Procedures (during after operation)

➤ Surgical Procedures and Monitoring:

(Marks 40)

✓ **Safety for operation room personnel**

- In Service education
- Body mechanic
- Fatigue Factors
- Radiation Safety

- Infection control
- Chemical Hazards

✓ **Preparation of Instruments Tray**

- Major procedures tray
- Basic /Minor procedures tray
- Limited procedures tray
- Thyroid tray
- Long instruments tray
- Biliary tract procedures tray
- Choledochoscopy tray
- Basic rigid sigmoidoscopy tray
- Gastrointestinal procedures tray
- Rectal procedures tray

✓ **Gynaecologic and Obstetric Trays**

- Dilatation of the Cervix and Curettage of the Uterus (D&C) Tray
- Cervical Cone Tray
- Laparoscopy
- Abdominal Hysterectomy
- Caesarian Section tray
- Vaginal Hysterectomy tray

✓ **Genitourinary Trays :**

- Vasectomy tray
- Open Prostatectomy
- Kidney tray

✓ **Thoracic Trays :**

- Mediastinoscopy tray
- Thoractomy Tray
- Pacemaker tray
- ✓ **Cardiovascular Trays :-**
- Vascular Procedures tray
- Vascular Shunt Tray
- Cardiac procedures tray
- ✓ **Orthopaedic Trays :-**
- Basic orthopaedi procedures tray
- Minor orthopaedic procedures tray
- Bone holding instruments tray
- Hip retractor tray
- Knee Arthrotomy tray
- Knee or Ankle Arthroscopy tray

✓ **Neurologic Procedures Tray :**

- Craniotomy tray
- Laminectomy Tray
- Kerrison Rongeurs and Pituitary Coreps tray
- ✓ **Otorhinolaryngologic (ENT) Trays :-**

- Basic Ear procedures tray
- Nasal procedures tray
- Myringotomy tray
- Tonsillectomy and Adenoidectomy tray
- Tracheostomy tray
- Antral Puncture tray

✓ **Ophthalmic Trays :-**

- Basic Eye procedures tray
- Eyelid and Conjunctival procedures tray
- Basic Eye Muscle procedures tray
- Cataract Extraction and Lense procedures tray
- Glaucoma Procedures tray
- Basic Eye procedures Microscope tray
- Retinal procedures tray

✓ **Pediatric Tray :-**

- Pediatric major procedures tray
- Pediatric minor Procedures tray
- Pediatric Gastrointestinal Procedures trays.

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Annexure "E"

Marks :-120
Time :- 2.00 Hours

ITEM GRID AND SYLLABUS:

	GRID	TOTAL NUMBER OF QUESTIONS
APTITUDE	General English	20
	General knowledge and current affairs (India)	15
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	Numerical and Reasoning Ability	15
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	TOTAL MARKS (APTITUDE)	60
TECHNICAL	TECHNICAL QUESTIONS	60
	TOTAL MARKS	120

DETAILED SYLLABUS INDICATED BELOW FOR *APTITUDE* AND *TECHNICAL*

APTITUDE SYLLABUS

GENERAL ENGLISH

- Articles
- Clauses
- Pronouns
- Homonyms/ homophones
- Tenses
- Clauses
- Punctuation
- Synonyms and antonyms
- Analogies
- Idioms and phrases
- Uses of Prepositions

GENERAL KNOWLEDGE AND CURRENT AFFAIRS (INDIA)

- Important dates in Indian History / Freedom struggle, different dates and events
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- Popular names of Personalities (Religion, Politics, Scientific discoveries, Geographical, Sports, History)
- The Newspaper world – (Current Dailies & Weeklies of India)
- Books & Authors – General
- Languages
- Capitals & Currencies
- United Nations Organizations – Veto Powers
- No. of Countries as its Members
- Principal organs and their functions
- SAARC, ASEAN
- Everyday Science
- World famous Awards - (1. in Science)
(2. in Literature)
(3. in Sports)
- National Awards - (1. in Science)
(2. in Literature)
(3. in Sports)
- The world of Sports
- Climate & Crops in India
- Democratic institutions
- Forms of Government
- Political & Physical divisions of world & India
- Important rivers & Lakes in India
- Current Events of National and International Level
- Role of Mathematics in Economics
- Agriculture in economic development; Industrialization and economic development
- Indian Foreign Trade
- New economic reforms and growth of foreign trade
- Inflation – Concept and types; Causes and consequences

GENERAL KNOWLEDGE WITH SPECIAL REFERENCE TO J&K

- i) Popular names of personalities (Religion, Politics, Scientific discoveries, Geographical, Sports, History)
- ii) Constitution of India - Formation, Fundamental rights, Directive principles.
- iii) 73rd amendment of constitution of India.
- iv) Centrally Sponsored Schemes- Guidelines and objectives.
- v) Important Tourist Destinations.
- vi) History of J&K- places and their importance.
- vii) Sustainable Development Goal.
- viii) Agriculture in economic development, industrialization and economic development.

- ix) Panchayati Raj Act, 1989 (as amended upto October, 2018 and rules)
- x) Climate and crops in J&K and India.
- xi) Current events of Local, National and International importance.

NUMERICAL AND REASONING ABILITY

The candidates will be tested primarily on the fundamental mathematical concepts and application oriented reasoning. The broad areas will include the following;

Basic Arithmetic:

- Number System
- Percentage
- Average
- Profit & Loss
- Ratio & Proportion
- Speed, Distance and Time
- Mathematical reasoning

Reasoning ability:

- Number series
- Letter series
- Coding decoding
- Direction sense
- Blood relations
- Statements and conclusions
- Logical Reasoning
- Mental Reasoning

BASIC CONCEPTS OF COMPUTERS

The candidates' understanding of the concepts of computers and its application will be tested and it will broadly cover the following:

- Computer terminology
- Hardware and Software
- Storage and Operating systems
- Safety and Security
- E-mail and Internet Usage

TECHNICAL SYLLABUS

- Fundamentals of Electrical Engineering
- Basics of Information Technology
- Engineering Drawing
- Electronic Components and Materials
- Basic Electronics
- General Engineering
- Electronic Devices and Circuits
- Electronic Instruments and Measurements
- Principles of Communication Engineering
- Digital Electronics
- Electronic Drawing, Design and Fabrication Techniques
- Computer Programming and Applications
- Electrical Machines
- Communication Systems

- Network Filters and Transmission Lines
- Microprocessors and Applications
- Fundamentals of Electronic Instrumentation
- Microwave and Radar Engineering
- Troubleshooting of Electronic Equipment
- Power Electronics
- Advanced Microprocessors
- Consumer Electronics
- Micro controllers and Embedded Systems
- Digital and Data Communication

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ANNEXURE "F"

SYLLABUS

Marks :-120
Time :- 2.00 Hours

Semester - I

➤ Anatomy and Physiology

(Marks : 15)

✓ **General:**

Introduction to the Human body. Terms used in Anatomy, (Surface anatomy, markings and locations of different body parts and important body planes. Planes and Regions of Thoracic, Abdominal and pelvic Cavities.

✓ **Animal Cell :**

Structure of cell, function and cell divisions.

✓ **Tissue System:**

Definition, structure & function of epithelium, connective, Muscular, Fluid and nervous tissues.

✓ **Cardiovascular System.**

Heart, pericardium, Arterial system, Venous system, Capillary, systemic circulation.

✓ **Digestive System:**

Mouth , oesophagus, stomach, small intestine, large intestine, spleen, liver, Salivary Gland , Gall Bladder, pancreas, Physiology and Digestion Absorption and Assimilation of Food.

✓ **Respiratory System:**

Noise , pharynx, larynx, trachea, Bronchi, lungs, pleura, physiology of Respiration- Expiration and Inspiration, Internal and External Respiration, Breathing control, vital capacity . Tidal volume and Dead space.

✓ **Reproductive system:**

- Male Reproductive system: Male Reproductive organs,
- Spermatogenesis, Testosterone and Secondary sexual characters.

Female Reproductive System: Vulva, internal reproductive organs menstrual cycle, ovarian hormones & Female breast.

✓ **Excretory System:**

Introduction to Excretory body organs, structure of kidneys , ureters, Urinary, Bladder, Urethra, Physiology of filtration Reabsorption and secretion.

✓ **Nervous System:**

Brain Meninges , ventricles spinal cord nerves and cerebro spinal fluids.

✓ **Lymphatic System:**

Lymph Glands, Thoracic Ducts. Composition & Circulation of Lymph.

✓ **Endocrine system –**

Definition, Pituitary Gland, Pineal gland. Thymus Gland Adrenal Glands Thyroid, Parathyroid Glands.

✓ **Sense Organs-**

Structure and function of Eye , Skin , Ear and Tongue.

✓ **Musculoskeletal System-**

Skull, vertebral column, shoulder girdle, Thoracic cage. Bones upper limbs, Bones of lower limbs, type of bony joints and movements.

➤ **General Physics**

(Marks : 10)

Unit, Measurements, Motion, Newton's Law of Gravitation Work energy, Properties of matter & Archimedes principle.

✓ **Heat -**

Thermometry & Kinetic Molecular Picture of Heat, Thermal Expansion Transference of heat, heat energics, Calorimeter and hygrometry Practical points of heat in X-Ray equipment.

✓ **Light -**

Rectilinear propagation, Photometry reflection laws. Spectroscope optical instruments, velocity of Light X-Ray spectroscope.

✓ **Magnetism -**

Properties of Magnetism, Molecular Theory of Magnetism, magnetic field, Lines of Force, Magnetic forces and Territorial magnetism, Hysteresis.

✓ **Electricity -**

Simple electronic phenomenon, potential difference and electric current capacitor of condenser inductance, impedance, Electro magnetism resistance heating and chemical effect of current, electromagnetic induction, Laws, Ohm's law, Safety fuses Galvanometer, AC and DC currents, RMS value, Peak value.

✓ **Sound -**

Production of sound, wave motion, velocity of sound, Superimposition of sound musical sounds, vibration of strings, Air Columns etc. Production ultrasonic waves, Clinical application of ultra sound.

✓ **Transformers**

Principles construction of step up & down and Auto transformers, construction of high tension .Transformers rectification . Self rectification.

✓ **X-Ray**

Production of x-ray, properties, interaction with matter (Photo electric compton effect and pair production) luminescent effect, photographc effect, ionizing effect & biological effects.

✓ **Units and Measurements of X-Rays-**

Lonixation, Roentigen, Rad Rem, R.B.E. Radiaton badges, lionization chambers.

Semester - II

➤ **X-Ray Tube –**

(10 Marks)

- Construction of x-ray tube Targets, cooling and insulation, X-Ray Circuits , timers and rectifiers in x-ray, circuits, inter locking circuits, stationary and Ratatory anode tube.
- Quantity and Quality x-ray , H.V.T or VVL linear absorption co-efficient grids, cones cylinders, filters, focal spot size LBD FFD or LSD and OFD Fluoroscopy and Image intensifier

✓ **Radioactivity :-**

- Curie, Half life period, decay factor, radium, cobalt, caesium, dose. Dose rate exposure dose, Exit dose, Depth dose, isotopes and isobars, isodose charts and their uses.
- Gamma of X-Ray film (toe & shoulder region linear and Solarization) X-Ray tube calibration, sensitometer, densitometer.

✓ **Musculoskeletal System :-**

- Skull, vertebral column, Shoulder girdle, Thoracic cage. Bones upper limbs, Bones of lower limbs, Types of bony joints and movements.

➤ **Radiographic photography Technique (Dark room Techniques)**

(30 Marks)

✓ **Dark Room-**

- Definition and location of dark room, ideal design of dark room , light and radiation protection devices , safe light test, ventilation, dry and wet benches, Duplicator.

✓ **Radiographic Films-**

- Ortho-chromatic films , panchromatic films, Base, Bonding layer, emulsion and super coating of films. Non screen films CTA base and polyster base films. The structure of Double coated & single coated film.

✓ **X-Ray Cassettes -**

- Construction of various cassettes, cassettes care, mounting of intensifying screen in cassettes.

✓ **Intensifying screens-**

- Luminescence (Phosphorescence and fluorescence) construction of screens. Type of phosphors and pigments film screen contact, speed of screens-slow parafast care of intensifying screens. Intensification factors numerical proof and rare earth screens.

- a) Mounting of intensifying screens.
- b) Screen film contact.

✓ **Film Processing -**

Auto processing material for processing equipment and annual processing control on temperature chemical in Dark room the PH Scale.

- X-ray Developer
- X-Ray Fixer
- Film Rinsing Washing & Drying
- Preparation of processing chemicals, loading and unloading of cassettes,

✓ **Presentation of Radiograph-**

- Film identification- Direct or Stereoscopic views, trimming legends, record filling and report distribution..

✓ **Film Artifacts-**

- Definition, type and causes of radiation and photographic artifacts, factors affecting the quality control of radiograph.

Semester - III

• **Radiographic General Procedures**

(30 Marks)

- Introduction- The Radiographic image (image formation, magnification image Distortion, Image, sharpness, Image contrast) Exposure factor and Anatomical Terminology.

✓ **Skeletal System-**

Upper Limb- Procedure for thumb, fingers, meta carpals, hand carpometacarpel joints, wrist joint, carpo-radio-ulnar joint, forearm, elbow joint, arm, special views for scaphoid bone, olecranon process, supra condylar projection in various type of injured patients.

- **Lower limb-** Procedure for toes, meta tarsals, complete foot, tarsometatarsal, talo calcaneal joint, leg with ankle joint leg with knee joint, thigh with hip joint.

- **Shoulder Girdle and Bony thorax-** Procedures for scapula clavicle and head of humerus sternoclavicular joint , special views for clavicle. Head of humerus and scapula in various types of injured or dislocation cases.
 - **Vertebral Column-** Normal curvature relative levels of vertebrae, procedures for atlanto-occipital joint, odontoid process, cervical spine , cervicodorsal spine , dorsalspine, dorso-lumbar spine, and spondylolysis.
 - **Pelvic Girdle and Hip Joints :** - Procedure for whole pelvis, ileum, ischium and public bones, sacro – iliac joint symphysis pubis, acetabulum, neck of femur greater & lesser trochanter. Hip Joint with upper one third femur, special view for orthodosis. S.M. pinning and S.P. nailing and plating.
 - **Skull :-** Procedure for whole skull, localized for frontal occipital, temporal, external and internal auditory meatus, sella turcica, juglar foramen, for a magnum, optic foramen maxillae zygomatic bones, mandible, temporo-mandibular joints, styloids processes, cranio-vertebral junction.
 - **Teeth :-** National and International formulae and D.T and P.T. Procedures for maxillary and mandibular teeth (incisors canine, premolar and molar) for D.T and P.T cephalometry, orthopantogram, occulusal view for maxilla and mandible.
- ✓ **Chest-**
- Procedures for chest at six feet, lying down and erect positions, inspiration and expiration views , special views like lordotic , decubitus, MMR portable teleradiography, chest in pregnancy. High Kilovoltagage technique.
- ✓ **Abdominal Pelvis –**
- Preparation for procedure, procedure for upper abdomen, lower abdomen, KUB Gallbladder Stomach , small intestine and large intestine in Supine and erect position, special views in case of perforation etc supine and erect position, special views in case of perforation etc.
- ✓ **Sinus –**
- Procedures for paranasalsinuse (frontal, ethmoid, sphenoid and maxillary sinuses.)
- ✓ **Soft Tissue Radiography-**
- Procedures for STM , STN abdomen and other body organs. inetogram procedures, manipulation of positions, immobilization , exposure, FFD in abnormal conditions of patients.
- ✓ **Hospital Practice and Care of Patients :-**
- Setup of Radiology department in Hospital, Hospital staffing and organization, Patients Registration, record filling, cases put up and dispatch devices, medico legal aspect of profession. Professional relationship of Radiographer with patient and organization staff.

❖ **Special Investigation (15 Marks)**

- ✓ **Urinary Tract –**

- Plain Radiographs for UB Intravenous Pyelography, (IVP or IVU) Retrograde pyelography, Micturating-cystourethrogram Retrograde Urethrogram.

✓ **Gastro –Intestinal Tract -**

- Plain Radiographs, abdomen, Barium Swallow, Ba meal ET, Ba Enema, double contrast Baenema and instant Baenema, Miscellaneous Procedures, Gastricgraffim study, fluoroscopy,

• **Biliary Tract**

✓

- Introduction to biliary contrast oral choleystography (OCG) pancreatography (ERCP), HCG, Fistulogram Sinogram.
- Basic principle and application of computerized tomography, ultrasound Magnetic resonance Imaging, Computer Radiography and Digital Radiography.
- Contrast Agents, Contrast Reaction and their management, Emergency Drugs used in Radiology Department.

Semester - IV

PAPER - I

➤ **Ardiological special procedures and radiotherapy (10 Marks)**

- **Introduction-** Importance of special procedure, parameters for a special procedure (indication, contraindication, patient preparation, accessories, contrast media, technique aftercare etc.
- Ideal step of different special procedure Laboratories (Cath-lab, Angiolab, U/S Lab. C.T. Center & M.R.I Centers) Accessories of a special procedure center.
- Contrast and different contrast media for various procedure, Adverse effects of contrast media.
- Handling of emergencies in Radiology deptt. Preparation of different contrast media. Uses of Drugs and other equipment in procedure roo. Checking of Instrument, drugs and their labellings knowledge of sterile and unsterile techniques.

✓ **Cardio-Vascular System -**

Plain Radiographs of Interested – Body part catheterization technique guidewires, Catheters, General complication of catheter technique.

- **Angiography peripheral Angiograms -** Angiogram for upper and lower limbs
 - **Central Angiogram :-** Cardiac catheterization, Carotid Angiogram, Aortogram, Selective angiogram, Digital subtraction angiography.
 - **Venography :** Plain Radiographs of interested body parts.
 - Peripheral Venography :** Venography of upper and lower limbs. Intraosseous venography
 - Central Venography :** - Portal venography, Superior venacavography, Inferior Venacavography Retrograde selective Venography.

- **Central Nervous System** - Introduction to water soluble contrast & Oily contrast for C.N. System. Plain Radiographs of skull or vertebral column, ventriculography, Pneumo encephalography, Shuntography, Myelography, cisternography.
- **Respiratory Tract** – Plain radiographs of Face, Neck or Thorax Nasopharyngography Oropharyngography, Laryngography, Lung Biopsy.
- **Reproductive System** : - Plain Radiographs of interested body part Vesiculography Hystero Salpingography, Gynaecography.
- **Skeletal System** :- Plain Radiographs of interested bones, Arthrography (wrist, knee , Shoulder, Hip elbow, ankle joints) Fistulography and Airmeatography.
Basic Principle and application of tomography computerized Tomography
Ultrasound, Magnetic resonance Imaging. Manula Substruction & Duplicating techniques.
- **Radiotherapy** :- Physical Principles of Radio Therapy general Pathology in Relation to Radiation Therapy Radiation Treatment & Types of Sources, cobalt Calcium and Radium. Radiotherapy its advantages & Disadvantages Radio therapy Tubes, Radiotherapy Techniques for skin, respiratory, Digestive Urinary, Reproductive, Endocrine and Nervous diseases, Kilovoltage techniques, External & Internal Radiation technique in various diseases. Plesiotherapy Dose data, uses of isodose chart for correction of isodose curve. Basic Principles of CT & MRI and application.

Semester - IV

PAPER - II

➤ **Medical OPD / Emergency / Ward Tray with Physician.**

✓ **Electrocardiography & Techniques -**

- Definition of ECG, EMG. Introduction to Electro Cardiography. History Physiological basic, Vector concept in ECG, Conduction velocity, Impulse generation, Impulse Transmission, Normal cardiacrhythum, Blood pressure, Pulse rate, Central Terminal of Wilson, Unipolar limb leads, Biopolar limb leads, Augmentation, Esophaeal leads, Jelly used in ECG different colour codes in ECG leads.

✓ **Normal Electrocardiograms -**

- Normal paper speed, standardization, Calibration, Filters, Normal heart position, Interpretation of ECG. Atrial complex (p-wave), P-R interval, QRS complex, QT Interval, ST segment, T-Wave, Purkinjee fibres repolarization. Duration and amplitude of different normal waves recorded in an ECG. No. of complexes to be recorded in a normal ECG.

✓ **Abnormal Electrocardiogram -**

- Abnormal P-wave, Interventricular conduction defect, RBBB (Right bundle Branch Block) LBB (Left Bundle Branch Block). Hypertrophy, RVH (Right Ventricular Hypertrophy, LVH (Left Venticular Hypertrophy), WPH (Wolf Parkinson white Syndrome.) Bilateral Bundle Branch Block. Trifasicuair Blocks. Lown-Ganong Levine-Syndrome, Mahim by pass, Pulmonary embolism. Chronic Obstruction. Mitral Lung disease (COPD). Biventricular Hypertrophy, Myocardial infarction Mitral Stenosis. Mitral valve prolapsed, Paroxy small Atrial Tachycardia. Sick-Sinus-Syndrome, Supra Ventricular Tacheardia. Left Posterior and anterior hemi block.

✓ **Coronary Artery Disease -**

- Ischemia, Injury, Infarction, Subtle, Atypical, Non-specific patterns. Condition defects and infarctions, Location of infarctions, ventricular premature beat and acute infarctions, coronary insufficiency. Atherosclerosis Thrombo embolism.

✓ **Drugs and Electrolytes -**

- Adrenaline, Acetyl choline, Digitalis, Quinidine, Potassium, Hyperkalemia and Hypokalemia, Hyper and Hypo Calcemia. Phenothiazines. Anthro Cyclines, Cerebro Vascular Accidents (CVA). Hypo and hyper Thermia, pericarditis, Myocarditis. Heart trauma. Pericardial effusion. Malignancy of heart. Cardiomyopathies, Electrical Alternans, Negative V-Wave, Liquid Protein diet Anaemia etc.

✓ **Exercise Test -**

- Definition, Acetyl Choline, Digitalis, Quinidine, Potassium. Hyperkalemia and Hypokalemia, Hyper and Hypo Calcemia. Phenothiazines. Anthro Cyclines, Cerebro Vascular Accidents (CVA), Hypo and Hyper thermia, pericarditis, Myocarditis. Heart Trauma. Pericardial effusion. Malignancy of heart. Cardiomyopathies, Electrical Alternans, Negative V-Wave, Liquid Protein diet Anaemia Etc.

✓ **Disorders of Cardiac Rhythm -**

- Disbalance of impulse formation at SA node, disturbance of impulse conduction, Secondary disorders of rhythm, Physiology of cardiac rhythm, automaticity. A Node, Sinus rhythm, Sinus tachycardia, Sinus brady cardia, Sinus Arrhythmia, Sinoatrial block, partial SA block, complete SA block, causes of exit block, Atrial Extrasystoles, Blocked Atrial extrasystole, Wandering Pacemaker, Paroxysmal Atrial tachycardia (PAT) Chaotic atrial rhythm, Atrial Flutter, Atrial Fibrillation, Supraventricular tachycardia (SVT.) Ventricular tachycardia (VT) Ventricular fibrillation. Sick sinus syndrome etc.

✓ **ECG as a Clue to Clinical Diagnosis -**

- Pulmonary Stenosis, tricuspid atresia, Atrial septal defect, Ventricular septal defect, Ebstein Anomaly, Corrected Transposition of great vessels, Mirror image dextrocardia, Anomalous Origin of left coronary Artery, Rheumatic Heart Disease (RHD), Mitral valve prolapsed, Athlete's Heart, cardiac Pacemaker etc.

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Annexure "G"

Marks :-120
Time :- 2.00 Hours

ITEM GRID AND SYLLABUS:

	GRID	TOTAL NUMBER OF QUESTIONS
APTITUDE	General English	20
	General knowledge and current affairs (India)	15
	<u>General knowledge with special reference to J&K</u>	5
	Numerical and Reasoning Ability	15
	Basic Concepts of Computers	5
	TOTAL MARKS (APTITUDE)	60
TECHNICAL	TECHNICAL QUESTIONS	60
	TOTAL MARKS	120

DETAILED SYLLABUS INDICATED BELOW FOR *APTITUDE* AND *TECHNICAL*

APTITUDE SYLLABUS

GENERAL ENGLISH

- Articles
- Clauses
- Pronouns
- Homonyms/ homophones
- Tenses
- Clauses
- Punctuation
- Synonyms and antonyms
- Analogies
- Idioms and phrases
- Uses of Prepositions

GENERAL KNOWLEDGE AND CURRENT AFFAIRS (INDIA)

- Important dates in Indian History / Freedom struggle, different dates and events
- First in world (Adventure, Sports, Discoveries).
First in India (Adventure, Sports, Discoveries)
- Popular names of Personalities (Religion, Politics, Scientific discoveries, Geographical, Sports, History)
- The Newspaper world – (Current Dailies & Weeklies of India)
- Books & Authors – General
- Languages
- Capitals & Currencies
- United Nations Organizations –
Veto Powers

No. of Countries as its Members

Principal organs and their functions
- SAARC, ASEAN
- Everyday Science
- World famous Awards - (1. in Science)
(2. in Literature)
(3. in Sports)
- National Awards - (1. in Science)
(2. in Literature)
(3. in Sports)
- The world of Sports
- Climate & Crops in India
- Democratic institutions
- Forms of Government
- Political & Physical divisions of world & India
- Important rivers & Lakes in India
- Current Events of National and International Level
- Role of Mathematics in Economics
- Agriculture in economic development; Industrialization and economic development
- Indian Foreign Trade
- New economic reforms and growth of foreign trade
- Inflation – Concept and types; Causes and consequences

GENERAL KNOWLEDGE WITH SPECIAL REFERENCE TO J&K

- i) Popular names of personalities (Religion, Politics, Scientific discoveries, Geographical, Sports, History)
- ii) Constitution of India - Formation, Fundamental rights, Directive principles.
- iii) 73rd amendment of constitution of India.
- iv) Centrally Sponsored Schemes- Guidelines and objectives.
- v) Important Tourist Destinations.

- vi) History of J&K- places and their importance.
- vii) Sustainable Development Goal.
- viii) Agriculture in economic development, industrialization and economic development.
- ix) Panchayati Raj Act, 1989 (as amended upto October, 2018 and rules)
- x) Climate and crops in J&K and India.
- xi) Current events of Local, National and International importance.

NUMERICAL AND REASONING ABILITY

The candidates will be tested primarily on the fundamental mathematical concepts and application oriented reasoning. The broad areas will include the following;

Basic Arithmetic:

- Number System
- Percentage
- Average
- Profit & Loss
- Ratio & Proportion
- Speed, Distance and Time
- Mathematical reasoning

Reasoning ability:

- Number series
- Letter series
- Coding decoding
- Direction sense
- Blood relations
- Statements and conclusions
- Logical Reasoning
- Mental Reasoning

BASIC CONCEPTS OF COMPUTERS

The candidates' understanding of the concepts of computers and its application will be tested and it will broadly cover the following:

- Computer terminology
- Hardware and Software
- Storage and Operating systems
- Safety and Security
- E-mail and Internet Usage

TECHNICAL SYLLABUS

- History and Appreciation of Art
- Visual Elements and Principles
- Aesthetics
- Clay Modelling

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ANNEXURE "H"

Marks :-120
Time :- 2.00 Hours

- **General Human Biology & Disease** (Marks 10)
- Elementary Physics and Chemistry.
 - Characteristics of living matter.
 - The Structure of living matter.
 - The Tissues
 - Systems and various parts of human body.
 - Development and types of Bones.
 - Bones of Head & trunk.
 - Bones of the Limb.
 - Joints and Articulations
 - Structure and Action of muscles
 - The Chief Muscles of the Body
 - The Blood
 - The heart and Blood Vessels
 - The Circulatory system
 - The Respiratory System
 - The Digestive System
 - The Liver , Biliary system and Pancreas
 - Nutrition and Metabolism
 - Endocrine Glands and Exocrine
 - The Urinary System
 - The Nervous system.
 - The Ear.
 - The Eye
 - The Skin
 - The Reproductive System etc.
- **Dental Anatomy & Physiology Pharmacology, Pathology including Microbiology**
- ✓ **General & Dental Anatomy** (Marks 10)
- Elementary Knowledge of the jaws and teeth, Important between deciduous and permanent teeth. Chronology of eruption , elementary knowledge of occlusion of teeth. Relationship of teeth with investing tissues, muscles of mastication facial expressions and elementary knowledge of temporary mandibular joints.
- **General & Dental Physiology and Histology** (Marks 10)
- Elementary knowledge of the structure and function of various dental and oral tissues e.g. gingival, peridontial membrane, alveolar process , cementum, enamel, dentine, mucous-membrance , pulp.
 - Salivary glands and functions of saliva, mastication.
- **General and Dental Pharmacology** (Marks 05)

- The Therapeutics drugs commonly used in dentistry and their effects. Practical diagnosis, dispensing of drugs.

✓ **Dental Radiology**

(Marks 05)

- Technical aspect of Dental Radiograph i.e. the taking processing and mounting of Dental Radiographs , Radiation Hazards and protection against radiation.

➤ **General Dentistry including Oral Surgery**

(Marks 30)

General knowledge of various materials used in Dentistry such as impression material, Gypsum products, waxes investing materials and various filling materials temporary and permanent.

✓ **Chairside Assistants**

- Reception of Patient.
- Lay –out of reception room and Dental Surgery and Hygienist Clinic.
- Chairside Assistance and Techniques
- Local anesthesia and equipment.
- Methods of Sterilization and care of Dental Instruments.
- Basic principles in surgery.
- The use of instruments in Dental practice.
- Examination of Oral Cavity and Charting of teeth etc.
- Instructions to patients and recalls.
- Maintenance of Dental Unit / Instrument.

➤ **Prosthodontics with Cosmetology**

(Marks 15)

- Introduction and applied anatomy.
- History taking and Examination.
- Simple surgical preparation, impression taking.
- Selection of patient.
- Phonetics and anatomical articulation.
- Clasp retained partial denture-plan , treatment, design and management.
- Partially edentulous arches.
- Connectors- major and minor and functions.
- Retainers direct and indirect.
- Dentures functions, biomechanics, Survey, diagnosis, planning , partial and temporary relining, resilient lining , aids to retention and relief.
- Cosmetology and appearance.
- Dental Materials and its manipulation.

➤ **Orthodontics**

(Marks 10)

- Etiology, Classification and malocclusion.
- Skeletal maturation, growth, dentition with special reference to endocrines.
- Classification of dentofacial abnormalities , anthropometrics, cephalometrics.

- Examination of patient, differential diagnosis and treatment planning .
- Principle of mechanotherapy
 - Basics about tweed method, twin wire appliance, activators , plates appliances including tissue reaction and evaluation of treatment.

➤ **General Hygiene, Nutrition, Community welfare, Conservative & Preventive Dentistry :**

✓ **Dental Hygiene and Oral Prophylaxis – (Marks 15)**

- Definition of Hygiene.
- Objective of Dental Hygiene.
- Oral prophylaxis-various methods.
- Stains on teeth-and their management.
- Dental Plaque, Dental calculus.
- Brief description and the role of oral Prophylaxis in Gingivitis, Peritonitis etc.
- ✓ **Clinicals –**
 - Instruments, technique of Oral Prophylaxis.
 - Polishing of teeth.
 - Topical application of fluorides.
 - Care of Oral Cavity and appliances during treatment of Maxillo-facial cases.

➤ **Conservative & Preventive Surgery (Marks 10)**

- Dental Caries-Prevalence and Prevention.
- Peridontial Diseases, saliva in relation to Dental Health and diseases.
- Dental Health & Diseases.
- Dietary habits and dental Health , Malocclusion , Oral Cancer.

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ANNEXURE "I"

Marks :-120
Time :- 2.00 Hours

➤ GENERAL HUMAN BIOLOGY & DISEASES

✓ **HUMAN BIOLOGY & DISEASE** (Marks 10)

- a) **Infectious Diseases** : General account, causes and control, immunity and chemotherapy.
- b) **Diseases of man**
(Definition of Disease, different type of pathogens such as bacteria, viruses and virus like organisms, fungi, helminths, protozoa), sources of Infections, Infection and contagious economic importance of diseases, methods of prevention and biology control.
- c) **Introduction** : Microscopic structure of tissues and organs of a human tissue-Connective tissues, epithelium, cartilage, bone, blood, muscular tissue and nervous tissue.
- d) Basic knowledge of Systems.
- e) **Organs** : Stomach, small intestine, liver pancreas lungs, spleen, kidney, skin, testis and ovary.
- f) Functional anatomy and physiology of the digestive system, Respiratory System, Circulatory System (with reference to immunity) Nervous System with special reference to transmission of the nerve impulse, sense organ, functions of muscles, Reproductive System, Endocrine System.
- g) Basic Pathology as applicable to above Systems.

✓ **CELLBIOLOGY & GENETICS INTRODUCTION:**

Cell theory, cell as a unit of life. Tools and techniques of cell studies, Microscopy (Use of Microscope and Calibration), elements of microscopic techniques histo and cytochemistry, Electron microscope.

Elementary Knowledge of principles of X-ray diffraction. Instruments and diffraction pattern.

Molecular building in cellular system simple to complex macromolecules, structure and properties, Biomembrance-Transport mechanism, cellular respiration cell organelles structure and their functions. Enzymes, Vitamins and Hormones their functions chemical and physical structure, mode of action. Role of regulation of cellular activities.

Nucleus, Chromosomes, DNA structure including events in replication and Transcription, genetic code, translation and protein synthesis and details of meiosis, gene interaction, linkage and crossing over, mutation, elaboration of Mendel's laws of inheritance, elementary concepts of quantitative inheritance human genetics, sex linked inheritance, genetics and society.

➤ **ANATOMY & PHYSIOLOGY OF EYE** (Marks 20)

✓ **ANATOMY OF THE EYE**

- a. Muscles of Eye.
- b. Conjunctiva, cornea, sclera, iris.
- c. Ciliary body, choroid and retina.
- d. Lens, vitreous and optic nerve.
- e. Circulation of the Eye.
- f. Orbit its relations and vascular communication.
- g. Lacrimal & lid glands.
- h. Visual Pathway.
- i. Cranial Nerves II, III
- j. Cranial Nerves IV, V, VI & VII.
- k. Pituitary Gland and Cavernous Sinus.
- l. Parasympathetic, sympathetic nerves in relation to eye.

✓ **PHYSIOLOGY OF THE EYE**

- a. Eye lid, lacrimal gland and lid gland.
- b. Functions of the eye ball and its parts.
- c. Pupillary reflexes.
- d. Convergence and accommodation (Pathway)
- e. Convergence and accommodation (Theory & Mechanism)
- f. Visual Pathways and fields.
- g. Light sense, colour sense and night vision.
- h. Form sense, visual acuity and testing.
- i. Unilocular and binocular vision.
- j. Eye movements (conjugate and Disconjugate) and laws governing them.
- k. Visual cortex.
- l. Vision

➤ **PHYSICS, CHEMISTRY, PHARMACOLOGY & PATHOLOGY**

(Marks 20)

➤ **RELATED TO EYE**

✓ **PHYSICS**

- a. **Measurements** : Concept of length and time, Conversion of some practical units. Equations of mechanical quantity, area, volume, velocity, acceleration, momentum, force, moment, energy and work (Their definition).
- b. **Wave Motion** : Simple Harmonic motion, waves and wave propagation, wave motion (including phase). Reflection, Dispersion, Polarization. Interference and diffraction etc.
- c. **Condensed State** : nature of liquids, surface tension, capillarity.
- d. **Electricity** : Moving charges, electric current, thermal effect. Joule's law, galvanometer, cyclotron (Basics) etc.
- e. **Electromagnetic Induction** : Lenz's law, Eddy currents, Faraday's laws of electromagnetic induction, elementary ideas of electromagnetic waves, rotating coil in a magnetic field, alternating current, transformers, long distance transmission lines, phase relationship between voltage and current etc.

✓ **CHEMISTRY**

- a. **Periodicity** : Periodic law and periodic table.

- b. Chemical handling and Molecular Shape :** Concept of orbital overlap in bond formation, hybridization and lone electron pair repulsion concept or resonance bond energy and bond length, properties of covalent compounds in relation to electro negativity. Shape of the simple molecules, coordinate bond formation with a few examples. Ionic bonds & definition, factors influencing the formation of ionic bond, general properties of ionic compounds, metallic bond, an explanation for properties of metals. Hydrogen bonding etc.
- c. State of Matter :** Discuss in terms of order and kinetic energy, properties of gas, liquids & elementary introduction to solid state.
- d. Energetics, Energy Changes Chemical Reactions :** Exothermic and Endothermic reactions, solutions, fusions, vaporization and sublimation, Hess's Law, Calorific values of food and fuels.
- e. Chemical Equilibrium :** Law of mass action and its application to chemical equilibrium, Le Chatelier Braun principle, factors, Ionic equilibrium aqueous solution products, common ion effect. Modern concept of acid and acid base equilibrium, hydrolysis of salt, buffer solution etc.
- f. Electro-Chemistry (Basic) :** Electrolysis, Faraday's and calculation based on them. Application of electrolysis to electroplating and electro chemical preparation, Electrolytic conduction.
- g. General Treatment of a block elements :** General trends of properties of the elements boron family, important minerals of boron, borax and orthoboric acid test, boron nitrates and boron, hydrides (only an elementary idea to show as an electron deficient molecule). Aluminium Its minerals, extraction, properties and uses. Some important compounds like alumina, aluminium and alums and alloys. (Especially boron, borax, aluminium group, including alums, carbon and nitrogen family).
- h. The Carbon Family :** General trends in properties, important mineral of tin and lead, various compounds, alloys of tin and lead.
- i. The Nitrogen Family :** General trends in properties of the family, important mine of phosphorus, ammonia, its manufacture, oxide and oxy-acids of nitrogen and phosphorus. Uses of metaphosphate, super phosphates and chemical fertilizers.
- j. Organic chemistry as chemistry of carbon compounds hydrocarbons, simplest organic compounds types of hydrocarbons, homologous series.**
 - a. Physical properties to be based on nature of bonding. Size and nature of the carbon chain and the general non-polar character.
 - b. Chemical Properties : Combustion and controlled oxidation : Free halogenations and cracking in alkanes, Catalytic hydrogenation and electrophilic addition in alkanes and alkynes. Markownikoff's rule.
 - c. Some simple transformations in benzene and aliphatic compounds
 - d. Sources of hydrocarbons : Petroleum and coal for treatment from industrial point of view.
- k. Galvanic Cells and cell potential I, electrochemical series.**

✓ **PHARMACOLOGY.**

1. Basic Pharmacology, Pharmacy Etc.
2. Antiseptics.
3. Local anaesthetics, analgesics
4. Anti-glaucoma drugs.
5. Sedative and tranquilizers
6. Mydratics and Miotics.

7. Antipyretics
8. Steroids
9. Chemotherapy agents including antibiotic.

✓ **PATHOLOGY RELATED TO EYE**

- a. Common eye Diseases.
- b. Diseases of Eye lids.
- c. Diseases of Orbit.
- d. Diseases of Adnexa.
- e. Diseases of Cornea.
- f. Diseases of conjunctiva
- g. Diseases of Lens.
- h. Injuries of the Eye.

➤ **OPTICS INCLUDING MECHANICAL OPTICS (Marks 25)**

✓ **OPTICS**

- Huygens construction (geometrical). Young's double slit experiments (idea of path difference). Lloyd's Mirror, colour of the films (qualitative), single slit, diffraction, applications of lesser beams, spectrometer, production of different types of spectral line, continuous and absorption.
 - a. Nomenclature of prisms and their uses.
 - b. Ophthalmic glass and physical properties of lenses of ophthalmic lenses.
 - c. Transmission density and opacity of a refracting glass and glass coating
 - d. Cylindrical lenses, Sturm's conoid.
 - e. Lens combination.
 - f. Aberration of lenses.
 - g. Principle of fabricating various types of special lenses.
 - h. Ophthalmic plastic lens.
 - i. Refractive media of eye and principles of visual imagery.
 - j. Corneal system and lenticular system.
 - k. Reduced eye and image formation including Gauss theorem.
 - l. Aberration of Eye.
 - m. Principles, mathematical derivation and utility of Purkinje images.
 - n. Pachometer.
 - o. Keratometer.
 - p. Accommodation and convergence.
 - q. Optical defects in genesis of refractive errors (Presbyopia, Aphakia and principles of their treatment with lens).
 - r. Instruments concerning ophthalmic glass testing.
 - s. Physiological basis of visual acuity and retinal image sizes.
 - t. Human eye and spectacles.
 - u. Effects of lens of the retinal image.
 - v. Field of view and magnification.
 - w. Refractive errors.
 - x. Retinoscopy & its principles.
 - y. Surface reflection.

✓ **MECHANICAL OPTICS**

- a. Power of lens.
- b. Transposition of spectacle lenses, shapes and sizes.
- c. Grinding Machines
- d. Grinding Materials.
- e. Tools and gauge and their testing.
- f. Spherical lenses.
- g. Cylindrical lenses.
- h. Bifocals and Multifocals.
- i. Ophthalmic peisms.
- j. Prism effect.
- k. Oblique cylinders.
- l. Protective lenses.
- m. Plastic lenses.
- n. Special lenses-Miscellaneous lenses & appliances.
- o. Speciality lenses:

➤ **MAINTANCE OF EQUIPMENT & INSTRUMENTS, ROUTINE& SPECIAL EYE INVESTIGATIONS & RELATED SURGICAL PROCEDURES**
(Marks 25)

✓ **MAINTENANCE OF EQUIPMNETS & INSTRUMENTS**

- Understanding of ophthalmic equipments.
- Optical equipments: Ophthalmoscope, slit lamps keratomcters Torches etc.
- Maintenance of Surgical Instruments.
- Diathermy machine.
- Microscope (laboratory) 7 eye bank equipments.
- Perimeter.
- Trial sets.
- Orthoptic equipments.

✓ **ROUTINE OPHTHALMIC INVESTIGATION**

- Conjunctival Swab & smear taking for cytology & culture.
- Syringing and lacrimal function test.
- Tension taking.
- Colour vision.
- Visual fields.
- Various instruments, their principles.
- Dark adaptometry.
- Keratometry.
- Pachometry.

- Anaesthesiometry.
- PH. Testing.
- Othocalor.
- Refractionometer.
- Measurement of spectacle lense, power of focimeter.
- Fluorescein staining and techniques.

✓ **SPECIAL OPHTHALMIC INVESTIGATIONS**

- E.R.G.
- E.C.G.
- Electro oculomyography.
- Ultrasonography.
- Tomography.
- Burrnan's Locater.
- Fluorescse in Angiography.
- Oculo- Nystagmography
- Ocular Photography anterior segment.
- Gonioscopy and 3 mirror C.L Examination.

✓ **ORTHOPTICS, PLEOPTICS AND MUSCULAR IMBLANCE**

- a. Normal Binocular function.
 - b. Grades of binocular vision.
 - c. Fusion and stabismus stereopis (SMP).
 - d. Etiology of strabismus.
 - Surgery.
 - Motor.
 - Central.
- **Methods of examination of strabismus.**
 - History.
 - Visual acuity.
 - Cover test.
 - **Ocular Movement and their testing.**
 - Measurement of angle of squint
 - Testing of Binocular functions
 - Reterophoira
 - Classification
 - Clinical picture
 - Investigations
 - **Esophoria**
 - Classification, Investigations.
 - Treatment
 - **Pheria (Cent.)**
 - Hyperphoria
 - Cyclophoria & Hyphoria
 - **Abnormalities of Monocular Vision**
 - Diploia
 - Confussion Supression

- **Abnormal Retinal Correspondance**

- Definition
- Aetiology
- Classification

Methods of detection of A.R.C. with their relatives importance of A.R.C. (Conti.)

- Prognosis
- Classification
- Investigations
- A.C./A. Ration
- Its importance
- Methods of testing

Concomitant Squint (accommodative)

- **Aetiopathogenesis**

- Classification
- Special investigations

- **Treatemt of Accommodative Squint**

- Optical
- Orthoptics
- Miotics
 - Surgery

- **Subject**

- Non – Accomodative Squint
- Classification
- Investigations
- Treatment

- **Divergent Squint**

- Classification
- Investigations

- **Vertical Squint**

- Aetiology
- Classification
- Investigations

- **Primary Vertical**

- **Secondary Vertical**

- a. Differential Diagnosis of Primary and secondary

- **Alternating Circumducdtion**

- Aetiology
- Classification
- Clinical Picture
- Investigation & Management

- **Torsional Squints**

- Cyelotopia
- Aetiology
- Classification
- Clinical Picture & Management

- **Suppression**

- Defection& treatment
- **Amolyopia**
 - Definition
 - Aetiology
 - Development
 - Classification
 - Detection
 - Management with occasional therapy after images
 - Definition
 - Description
 - Usage of after images in the treatment of Amoblyopia and pleoptic therapy
 - Haldinger brushes
 - Bangerter methos of pleoptic therapy
 - Indication of Orthoptic and surgical treatment
 - Latent strabismus
 - Manifest Stabisumus
 - Post-operative Othoptic Management.
- ✓ **INTRODUCTION TO TECHNIQUES AND PREPARATION OF THE PATIENT**
 - Asepris-How to achieve?
 - Anaesthetic agents and where indicated.
 - Pre-operative Instructions.
 - Cauterisation of Ulcers.
 - Spilation and Electrolysis.
 - Bandging of Eye.
 - Syringing.
 - Scraping.
 - Taking samples for conjunctival and culture examinations.
- **NUTRITION, INDUSTRIAL INCLUDING HILOLOGY, STATISTICS & COMMUNITY WELFAARE (Marks 20)**
 - ✓ **Indusrtial Hazards & Their Protection Hilology, Statistics & Nutrition**
 - a. Concept, Importance, classification food, dietary requirements (in context with eye,) balanced Dieet, Community Nutrition, Nutritional education : definition, scope, principles ect.
 - b. Nutrition and Eye Diseases.
 - c. Introduction, Concurrence, methods of cultivation of important crop plants and related diseases.
 - ✓ **STATISTICS AND CLAULUS**
 - a. **Statistics & Probability**
 - Population and sample
 - Measures of central lendency and dispersion.
 - Point and interval estimation (of mean only)
 - Scatter diagrams and a Pearson Correlation co-efficient) probality:
 - Random experiments and sample space. Events.
 - Probility on a sample.
 - Conditional probility, multiplication theorem.
 - Independent events.
 - Random variables (disscsrete), Binomial and poisson probility distr

- Expected value (Mean) and variance. Calculations for probability distribution.
- Normal distribution.

Fundamental principles and basic knowledge.

✓ **VISIONAIDS, CONTACT LENS & PROTECTIVE GLASSES**

- Contact lens basic concepts.
 - Lense designing.
 - Manufacturing principles and low vision aid.
 - Causes of visual impairment and blindness.
 - Classification of low vision aids and special optical features of groups and child mode action.
 - Introduction to visual prosthesis.
 - Visual requirement in industries.
 - Illuminations.
 - Prevention of industrial injury and special services to aid this.
 - First Aid to eye injury.
- **Entrepreneurship:** Introduction to entrepreneurship meaning, importance and persons qualities needed, scope, employment opportunities, Introduction to small business, production Marketing, managerial and financial, selection of business and preparation of Project Report. Financing Agencies, Financial facilities how and where to get procedural details in starting a new industry, investment, decision, market study, production, planning and scheduling budgeting, man power planning.

✓ **COMMUNITY WELFARE**

- Eye Screening Programmes, (with special emphasis on National Blindness Control Programme), School Clinics and Surveys.
- Functioning of Mobile Eye Health Units including eye camps and practical participation in the same.
- Determination of refractive errors and prescription of glasses.
- Blind and its problems and rehabilitation for the blind.
- Health Education in the field of eye care.
- Medical Secretarial Assistance.
- Appointments.
- Drafting and correspondence.
- Records Maintenance
- Coping.

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Annexure "J"

Marks :-120
Time :- 2.00 Hours

First Year

ANATOMY

(Marks : 2^{1/2})

- General Introduction
 - ✓ Histology
 - ✓ Osteology
 - ✓ General Embryology

- Systems of the Human body
 - ✓ Blood Vascular System
 - ✓ Respiratory System
 - ✓ Digestive System
 - ✓ Urogenital System
 - ✓ Endocrine System
 - ✓ Integumentary System
 - ✓ Surface Anatomy

- Neuroanatomy
- Muscular Skeletal System
 - ✓ Myology
 - ✓ Osteology & Arthrology
 - ✓ Radiological Anatomy

PHYSIOLOGY

(Marks : 2^{1/2})

- General Introduction
 - ✓ Cell Introduction
 - ✓ Skin
 - ✓ Blood and Lymph

- Physiology of the Systems of the body
 - ✓ Digestion
 - ✓ Circulation
 - ✓ Excretion
 - ✓ Respiration
 - ✓ Endocrine System
 - ✓ General Metabolism
 - ✓ Neurophysiology
 - ✓ Muscle Physiology
 - ✓ Physiology of exercise and work

PATHOLOGY AND MICROBIOLOGY (Marks : 2^{1/2})

- Pathology
 - ✓ Introduction
 - ✓ Bacterial , viral and Parasitic Infections
 - ✓ Inflammation and repair, degeneration, necrosis, and Gangrene

- ✓ Haemorrhage, shock, embolism, thrombosis
- ✓ Tuberculosis
- ✓ Tumours
- ✓ Blood
 - **Microbiology**
- ✓ Introduction and History of microbiology
- ✓ Microorganisms
- ✓ Disinfection and Antiseptics
- ✓ Sterilization and asepsis
- ✓ Non-specific immunity
- ✓ Outline of common pathogenic bacteria and diseases produced by them. Treatment and prevention

PHARMACOLOGY AND BIOCHEMISTRY (Marks : 2^{1/2})

- **Pharmacology**
- ✓ General action of drugs
- ✓ Drug allergy and idiosyncrasy
- ✓ Drug toxicity
- ✓ Methods of administration
- ✓ Immunologic agents
- ✓ Diagnostic agents
- **Biochemistry**
- ✓ Biochemical characteristics of living matter
- ✓ Biochemistry morphology of cell
- ✓ Nucleic acids
- ✓ Proteins
- ✓ The enzymes
- ✓ Metabolism
- ✓ Hormones
- ✓ Common procedures used in biochemistry

SOCIOLOGY (Marks : 5)

- ✓ Introduction
- ✓ Sociology and Health
- ✓ Socialization
- ✓ Social Groups
- ✓ Family
- ✓ Community
- ✓ Culture
- ✓ Caste System
- ✓ Social Change
- ✓ Social Control
- ✓ Social problems of the disabled
- ✓ Social Security
- ✓ Social Worker

Second Year

GENERAL AND HEALTH PSYCHOLOGY (Marks : 5)

- **General and Health Psychology**

- ✓ Definition of Psychology
- ✓ Heredity and environment
- ✓ Development and Growth behavior
- ✓ Intelligence
- ✓ Motivation
- ✓ Emotions
- ✓ Personality
- ✓ Learning
- ✓ Thinking
- ✓ Frustration
- ✓ Sensation, Attention and Perception
- ✓ Democratic and authoritarian leadership
- ✓ Defence mechanisms of the EGO

- **Health Psychology**

- ✓ Psychological reactions of a patient
- ✓ Reactions to loss
- ✓ Stress
- ✓ Communications
- ✓ Compliance
- ✓ Emotional needs
- ✓ Geriatric Psychology
- ✓ Paediatric Psychology
- ✓ Behaviour Modification
- ✓ Substance abuse
- ✓ Personality styles

ORTHOPAEDICS

(Marks : 10)

- ✓ Introduction to orthopaedics
- ✓ Principles of operative treatment
- ✓ Sprains and muscle strains
- ✓ Sports injuries
- ✓ Fractures & Dislocations
- ✓ Upperlimb fractures & Dislocations
- ✓ Lower Limb Fractures & Dislocations
- ✓ Spinal Fractures and Dislocations
- ✓ Recurrent Dislocations
- ✓ Amputations
- ✓ Bone & Joint infections
- ✓ Bone joint Tumours
- ✓ Chronic Arthritis
- ✓ Spinal Deformities
- ✓ Poliomyelitis
- ✓ Congenital Deformities
- ✓ Peripheral nerve injuries
- ✓ Hand injuries
- ✓ Leprosy

BIOMECHANICS & KINESIOLOGY (Marks : 10)

- ✓ Mechanics
- ✓ Joint structure and function
- ✓ Muscle structure and functions

- ✓ Posture & gait

FUNDAMENTAL OF OCCUPATIONAL THERAPY (Marks : 15)

- ✓ General Objectives
- ✓ Specific objectives of the Course
- ✓ Various definition and functions of occupational therapy
- ✓ Therapeutic activities
- ✓ Occupational therapy as diagnostic and Prognostic Procedure
- ✓ Dosage in occupational therapy
- ✓ Importance of interest in occupational therapy
- ✓ Occupational Therapist
- ✓ Different types of evaluations and their importance
- ✓ Co-ordination
- ✓ Contracture & Deformities
- ✓ Fatigue
- ✓ Neurological disorders

THERAPEUTIC ACTIVITY MODALITIES (Marks : 5)

- ✓ Classification of therapeutic activities
- ✓ Knowledge of different machines and equipments used in occupational therapy
- ✓ Handicrafts in relation to occupational therapy
- ✓ Definitions materials, equipments and Therapeutic values of the following activities modalities.

Third Year

GENERAL MEDICINE (Marks : 5)

- ✓ Introduction
- ✓ Bacterial Diseases
- ✓ Viral Diseases
- ✓ Metabolic and Deficiency Diseases
- ✓ Diseases of Respiratory System
- ✓ Diseases of Circulatory System
- ✓ Diseases of Digestive System
- ✓ Disease of liver
- ✓ Diseases of Kidney
- ✓ Diseases of skin
- ✓ Psychiatry
- ✓ Mental retardation
- ✓ Therapies

GENERAL SURGERY (Marks : 5)

- ✓ Introduction
- ✓ Shock
- ✓ Haemorrhage
- ✓ Blood Transfusion
- ✓ Anesthesia
- ✓ Wounds
- ✓ Wound Infections
- ✓ Tumours and Ulcers
- ✓ Burns

- ✓ Skin Grafting
- ✓ Hand Infections
- ✓ General Injuries
- ✓ Complications of surgery
- ✓ Abdominal Surgery
- ✓ Thoracic and Cardiac Surgery
- ✓ Obstetrics and Gynecology
- ✓ Ophthalmology
- ✓ Ear, Nose, Throat (ENT)

PAEDIATRICS AND GERIATRICS (Marks : 5)

- **Paediatrics**
 - ✓ Review normal foetal development & Child birth, including assessment of a neonate
 - ✓ Congenital & acquired Cardio-pulmonary disorders
 - ✓ Congenital & acquired neurological disorders
 - ✓ Hereditary disorders
- **Geriatrics**
 - ✓ Normal aging
 - ✓ The examination & assessment of a geriatric patient
 - ✓ Musculo skeletal disorders
 - ✓ Cardio pulmonary disorders
 - ✓ Neurological disorders
 - ✓ Diet & Nutritional requirement of the elderly
 - ✓ Dementia

FUNDAMENTALS OF OCCUPATIONAL THERAPY (Marks : 10)

- ✓ Posture
- ✓ Dynamic & Realistic approach to occupational therapy
- ✓ Ward & Bed side Occupations
- ✓ Establishment of occupational therapy, Deptt in a Hospital inclusive of organizations and administration of Deptt.
- ✓ Wheel Chair
- ✓ Orthopedic appliances
- ✓ Contraction
- ✓ Mobility and Limitations
- ✓ Goniometry or Arthorometry
- ✓ Muscle weakness
- ✓ Motivation in occupational Therapy
- ✓ Assistive apparatus for U.E & L.E
- ✓ Occupational Therapy as a supportive measure in General Hospital
- ✓ Motivation in Occupational Therapy
- ✓ Occupational Therapy as a supportive measure in General Hospital
- ✓ Definition, Scope, Importance of A.D.L, Goals of self Help Devices, teaching A.D.L in the following areas
 - Wheel Chair activities
 - Bed Activities
 - Self Care Activities

OCCUPATIONAL THERAPY IN ENVIRONMENT AND OCCUPATIONAL HEALTH (Marks : 10)

- **Environment**

- ✓ Definition
- ✓ Cultural and religious thought of environment
- ✓ Increasing population
- ✓ Land, Water, Air and sound pollution
- ✓ Causes of Environment Pollution
- ✓ Contamination of environment and basic rights
- ✓ Environment Education and Preservation of forests, environment
- ✓ Family pollution & its prevention
- ✓ Curbing measures in Occupational Therapy in population

- **Occupational Health**

- ✓ Definition
- ✓ O.T measures in work and health
- ✓ Social context of occupational Health
- ✓ Epidemiology & Occupational Hygiene
- ✓ Occupational safety as applied to O.T
- ✓ Prevention of accidents and overt trauma
- ✓ Occupational ergonomics through work designs
- ✓ Ethics in occupational Health
- ✓ Hazardous work place exposures

Fourth Year

NEUROLOGY

(Marks : 5)

- ✓ Degenerative disorders
- ✓ Infections
- ✓ Diseases of the Muscle
- ✓ Peripheral nerve disorders
- ✓ Epilepsy
- ✓ Myasthenia Gravis
- ✓ Intracranial Tumours
- ✓ Motor neuron disease
- ✓ Cranial nerve
- ✓ Introduction to neuropsychology

RESEARCH METHODOLOGY AND BIostatISTICS

(Marks : 5)

- ✓ Introduction
- ✓ Ethical issues in research, elements of informed consent
- ✓ Structure of a research proposal
- ✓ Research Question including literature review
- ✓ Measurement : Principles of measurement reliability and validity
- ✓ Experimental sampling and design
- ✓ Descriptive research
 - **Biostatistics**
- ✓ Descriptive statistics
- ✓ Comparison of means, t-tests
- ✓ Analysis of variance
- ✓ Multiple comparisons
- ✓ Non-parametric statistics
- ✓ Correlation

OCCUPATIONAL THERAPY IN MEDICAL AND SURGICAL CONDITIONS (Marks : 5)

- ✓ Occupational Therapy in pediatrics
- ✓ Occupational Therapy in geriatrics

- ✓ Occupational Therapy in Hemiplegia
- ✓ Occupational Therapy in Arthritic conditions and Burns
- ✓ Occupational Therapy in Myopathies & Muscular Disorders
- ✓ Occupational Therapy in Poliomyelitis
- ✓ Occupational Therapy in Cerebral Palsy
- ✓ Occupational Therapy in Visually Handicapped.
- ✓ Occupational Therapy in Extra Pyramidal Disorders
- ✓ Occupational Therapy in communication Disorders

OCCUPATIONAL THERAPY IN MENTALLY DISADVANTAGED & MENTAL HEALTH (Marks : 5)

REHABILITATION ORGANIZATION AND ADMINISTRATION (Marks : 2^{1/2})

COMPUTER APPLICATION IN OCCUPATIONAL THERAPY. (Marks : 2^{1/2})

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1ST YEAR SYLLABUS

➤ **BASIC ANATOMY**

(Marks 05)

✓ **THEORY**

Introduction to Anatomy

Basic Anatomical terminology

✓ **Osteology-**

- Upper limb – clavicle,
- scapula, humerus,
- radius,
- ulna
- Lower limb - femur,
- hipbone,
- sacrum,
- tibia,
- fibula
- Vertebral column

✓ **Thorax –**

- Intercostal space,
- pleura,
- bony thoracic cage,
- ribs sternum & thoracic vertebrae

✓ **Lungs –**

- Trachea,
- bronchial tree

✓ **Heart –**

- Surface anatomy of heart,
- chambers of the heart,
- valves of the heart,
- major blood vessels of heart,
- pericardium,
- coronary arteries.

✓ **Skeleto-muscular system –**

- Muscles of thorax,
- muscles of upper limb (arm & fore arm) Flexor and extensor group of muscles (origin, insertion, action)

✓ **Excretory system –**

- Kidneys,
- ureters,
- bladder

PRACTICALS

- ✓ **Osteology –** Bones identification (right and left side) and prominent features and muscle attachment of the bone, clavicle, scapula, radius, ulna, humerus, femur, hip bone, sacrum, tibia, fibula.

➤ **PHYSIOLOGY**

(Marks 05)

1) The Cell:

- Cell Structure and functions of the various organelles.
- Acid base balance and disturbances of acid base balances (Alkalosis, Acidosis)

2) The Blood:

- Composition of Blood, functions of the blood and plasma proteins, classification and protein.
- Pathological and Physiological variation of the RBC.
- Function of Hemoglobin
- Erythrocyte Sedimentation Rate.
- Detailed description about WBC-Total count (TC), Differential count (DC) and functions.
- Platelets – formation and normal level and functions
- Blood groups and Rh factor

3) Cardio-Vascular System:

- Physiology of the heart
- Heart sounds
- Cardiac cycle, Cardiac output.
- Auscultatory areas.
- Arterial pressures, blood pressure
- Hypertension
- Electro cardiogram (ECG)

4. Respiratory system:

- Respiratory movements.
- Definitions and Normal values of Lung volumes and Lung capacities.

5. Excretory system:

- Normal Urinary output
- Micturition
- Renal function tests, renal disorders.

6. Reproductive system:

- Formation of semen and spermatogenesis.
- Brief account of menstrual cycle.

7. Central Nervous system:

- Functions of CSF.

8. Endocrine system:

- Functions of the pituitary, thyroid, parathyroid, adrenal and pancreatic Hormones.

9. Digestive system (for the students of Diploma in Scope Support Technology)

- Physiological Anatomy of the GIT.
- Food Digestion in the mouth, stomach, intestine
- Absorption of foods
- Role of bile in the digestion.

PRACTICALS

- Determination of Blood Groups.
- Measurement of human blood pressure.
- Examination of Respiratory system to count respiratory rate and measure inspiration and respiration

➤ **BIO-CHEMISTRY**

(Marks 05)

✓ **Carbohydrates**

- Glucose and Glycogen Metabolism

✓ **Proteins:**

- Classification of proteins and functions

✓ **Lipids:**

- Classification of lipids and functions

✓ **Vitamins & Minerals:**

Fat soluble vitamins(A,D,E,K) – Water soluble vitamins – B-complex vitamins- principal elements(Calcium, Phosphorus, Magnesium, Sodium, Potassium, Chlorine and sulphur)- Trace elements – Calorific value of foods – Basal metabolic rate(BMR) – respiratory quotient(RQ) Specific dynamic action(SDA) – Balanced diet – Marasmus – Kwashiorkor

BIOCHEMISTRY PRACTICALS

- Benedict's test
- Heat coagulation tests

➤ **PATHOLOGY**

- Cellular adaptation, Cell injury & cell death.
- Introduction to pathology.
- Overview: Cellular response to stress and noxious stimuli.
- Cellular adaptations of growth and differentiation.
- Overview of cell injury and cell death.
- Causes of cell injury.
- Mechanisms of cell injury.
- Reversible and irreversible cell injury.
- Examples of cell injury and necrosis

✓ **Inflammation.**

- General features of inflammation
- Historical highlights
- Acute inflammation
- Chemical mediators of inflammation
- Outcomes of acute inflammation
- Morphologic patterns of acute inflammation
- Summary of acute inflammation
- Chronic inflammation

✓ **Immunity disorders.**

- General features of the immune system
- Disorders of the immune system

✓ **Infectious diseases.**

✓ **Neoplasia. Definitions Nomenclature**

- General principles of microbial pathogenesis
- Viral infections
- Bacterial infections-Rheumatic heart disease.
- Fungal infections
- Parasitic infections
- Biology of tumor growth benign and malignant neoplasms Epidemiology
- Carcinogenic agents and their cellular interactions Clinical features of tumors

➤ **BASICS OF COMPUTER**

✓ **COURSE CONTENT:**

Introduction to computer – I/O devices – memories – RAM and ROM – Different kinds of ROM – kilobytes. MB, GB their conversions – large computer –Medium, Micro, Mini computers – Different computer languages . Typing text in MS word Manipulating text – Formatting the text – using different font sizes, bold, italics – Bullets and numbering – Pictures, file insertion – Aligning the text and justify – choosing paper size – adjusting margins – Header and footer, inserting page No's in a document – Printing a file with options – Using spell check and grammar – Find and replace – Mail merge – inserting tables in a document. Introduction to Internet – Using search engine – Google search – Exploring the next using Internet Explorer and Navigator – Uploading and Download of files and images – E-mail ID creation – Sending messages – Attaching files in E-mail – Introduction to "C" language – Different variables, declaration, usage – writing small programs using functions and sub – functions.

IIND YEAR SYLLABUS

1. Applied Anatomy and Physiology
2. Clinical Pharamacology
3. Clinical microbiology
4. Medical Ethics.
5. Medicine outline
6. Principles of Anaesthesia

7. Basic Anaesthetic techniques

➤ **APPLIED ANATOMY AND PHYSIOLOGY RELATED TO ANAESTHESIA** **(Marks 15)**

RESPIRATORY SYSTEM

✓ **A Structure and function of the respiratory tract in relation to respiratory system**

Nose	-	Role in humidification
Pharynx	-	Obstruction in airways
Larynx	-	Movement of vocal cords, cord palsies. Trachea & Bronchial tree – vessels, nerve supply, respiratory tract, reflexes, bronchospasm
Alveoli	-	Layers, Surfactants.

✓ **B. Respiratory Physiology**

○ **Control of breathing**

- Respiratory muscles - diaphragm, intercostals
- Lung volumes - dead space, vital capacity, FRC etc.
- Pleural cavity - intrapleural pressure, pneumothorax.
- Work of breathing - airway resistance, compliance
- Respiratory movements under anaesthesia.
- Tracheal tug - signs, hiccup

✓ **C. Pulmonary Gas Exchange And Acid Base Status**

- Pulmonary circulation
- Pulmonary oedema,
- Pulmonary hypertension
- Pulmonary function tests.
- Transfer of gases - oxygen & Carbon dioxide
- Acid base status, definitions, acidosis types, Alkalosis types, buffers in the body.

✓ **D. Oxygen: properties, storage, supply, hypoxia**

✓ **E. Respiratory failure, type, clinical features, causes.**

➤ **CARDIOVASCULAR SYSTEM**

• **Anatomy –**

- Chambers of the heart, major vasculature.
- Coronary supply, innervation.
- Conduction system.
- Cardiac output - determinants, heart rate, preload, after load.
- Coronary blood flow & myocardial oxygen supply

• **ECG**

- Arrhythmias cardiovascular response to
- Anaesthetic & surgical procedures.
- Hypotension - causes, effects, management.

- Cardio pulmonary resuscitation.
- Myocardial infarction, hypertension.

- **FLUIDS AND ELECTROLYTES**

- Body Fluids - Composition
- Water, sodium and potassium balance
- Fluids - composition & administration
- Cannulation.

- **BLOOD TRANSFUSION**

- Blood grouping, storage, administration

➤ **Clinical Pharmacology**

(Marks 15)

✓ **ANTISIALAGOGUES**

- Atropine,
- Glycopyrrolate

✓ **SEDATIVES / ANXIOLYTICS**

- Diazepam,
- Midazolam,
- Phenergan,
- Lorazepam,
- Chlorpromazine,
- Trichlopho

✓ **NARCOTICS**

- Morphine, Pethidine, Fentanyl, Pentazocine

✓ **ANTIEMETICS**

- Metoclopramide, Ondansetron, Dexamethasone

✓ **ANTACIDS**

- Na citrate, Gelusil, Mucaine gel.
- H₂ BLOCKERS
- Cimetidine, Ranitidine, Famotidine

✓ **INDUCTION AGENT**

- Thiopentone, Diazepam, Midazolam, Ketamine, Propofol, Etomidate.
- MUSCLE RELAXANTS
- Depolarising - Suxamethonium,
- Non depolarising - Pancuronium, Vecuronium, Atracurium, rocuranium

✓ **INHALATIONAL GASES**

- Gases - O₂, N₂O, Air
- Agents - Ether-, Halothane, Isoflurane, Saevoflurane, Desflurane
- REVERSAL AGENTS
- Neostigmine, Glycopyrrolate, Atropine,
- Nalorphine, Naloxone, Flumazenil (Diazepam)

✓ **LOCAL ANAESTHETICS**

- Xylocaine, Preparation, Local – Bupivacaine - Topical, Prilocaine-jelly, Emla - Ointment, Etidocaine. Ropivacaine

✓ **. EMERGENCY DRUGS**

- Adrenaline : Mode or administration, dilution, dosage,
- Effects, Isoprenaline
- Atropine, bicarbonate, calcium, ephedrine, xylocard,
- Ionotropes : dopamine, dobutamine, amidaron
- Aminophylline, hydrocortisone, antihistamines, potassium.
- Cardiovascular drugs

- Antihypertensives
- Antiarrhythmics
- Beta - Blockers
- Ca - Channel blockers.

✓ **MEDICAL ETHICS**

- Medical ethics - Definition - Goal - Scope
- Code of conduct - Introduction –
- Basic principles of medical ethics – Confidentiality
- Malpractice and negligence - Rational and irrational drug therapy

✓ **MEDICINE OUTLINES**

- Disorder of haemopoiesis - Anaemias - iron deficiency anaemia,
- Infections diseases - Sepsis and septic shock, fever of unknown origin, infective endocarditis, infective of skin, muscle, soft tissue, infection control in hospital, diseases caused by bacteria, viruses, mycobacteria, viruses, fungi and protozoa and helminthes, common secondary infection in HIV.
- Diseases of CVS - congenital RHD - Rheumatic fever, CAD, Peripheral vascular diseases.
- Respiratory system - asthma pneumonia
- Kidney & Urinary tract - acute renal failure, Glomerulonephritis, Haemodialysis, Transplant, Urinary tract infection
- Liver and biliary tract disease - Viral hepatitis, alcoholism
- Endocrinology and metabolism - Diabetes mellitus, Hyper - and hypothyroidism

➤ **CSSD Procedures**

(Marks 05)

1. Waste disposal collection of used items from user area, reception protective clothing and disinfections safety guards,
2. use of disinfectants sorting and classification of equipment for cleaning purposes, sharps, blunt lighted etc. contaminated high risk baby care - delicate instruments or hot care instruments,
3. cleaning process - use of detergents. Mechanical cleaning apparatus, cleaning instruments, cleaning jars, receivers bowls etc. trays, basins and similar hand ware utensils. Cleaning of catheters and tubings, cleaning glass ware, cleaning syringes and needles.
4. Materials used for wrapping and packing assembling pack contents. Types of packs prepared. Inclusion of trays and gilliparts in packs. Method of wrapping and making use of indications to show that a pack of container has been through a sterilization process date stamping.
5. General observations principles of sterilization. Moist heat sterilization. Dry heat sterilization. EO gas sterilization. H2O2 gas plasma vapo sterilization.

➤ **PRINCIPLES OF ANAESTHESIA**

(Marks 30)

- **MEDICAL GAS SUPPLY**
 - Compressed gas cylinders
 - Colour coding
 - Cylinder valves; pin index.
 - Gas piping system

- Recommendations for piping system
 - Alarms & safety devices.
- ✓ **ANAESTHESIA MACHINE**
- Hanger and yoke system
 - Cylinder pressure gauge
 - Pressure regulator
 - Flow meter assembly
 - Vapourizers - types, hazards, maintenance, filling and draining, etc.
- ✓ **BREATHING SYSTEM**
- General considerations: humidity & heat
 - Common components - connectors, adaptors, reservoir bags.
 - Capnography ; etcO₂
 - Pulse oximetry
 - Methods of humidification.
 - Classification of breathing system
 - Mapleson system - a b c d e f
 - Jackson Rees system, Bain circuit
 - Non rebreathing valves - ambu valves
 - The circle system
 - Components
 - Soda lime, indicators
- ✓ **FACE MASKS & AIRWAY LARYNGOSCOPES**
- Types, sizes
 - Endotracheal tubes - Types, sizes.
 - Cuff system
 - Fixing, removing and inflating cuff, checking tube position complications.
- ✓ **ANAESTHESIA VENTILATOR AND WORKING PRINCIPLES.**
- ✓ **MONITORING**
- ECG
 - SpO₂
 - Temperature
 - IBP
 - CVP
- **BASIC ANAESTHETIC TECHNIQUES** **(Marks 30)**
- ✓ **HISTORY OF ANAESTHESIA**
- ✓ **First successful clinical demonstration:**
- Pre - historic (ether) era
 - Inhalational anaesthetic era
 - Regional anaesthetic era
 - Intravenous anaesthetic era
-
- Modern anaesthetic era
 - Minimum standard of anaesthesia
 - Who should give anaesthesia?
- ✓ **PRE-OP PREPARATION:**
- Pre anaesthetic assessment~ History – , past history - disease / Surgery / and personal history - Smoking / alcohol

- ✓ **General physical assessment, systemic examination – CVS, RS, CNS**

INVESTIGATIONS

- ✓ **Routine - Haematological - their significance**

- Urine
- E.C.G.
- Chest X - ray

- ✓ **Special -Endocrine, hormonal assays**

- Echocardiography
- Angiography
- Liver function test
- Renal function test
- Others

- ✓ **PRE - ANAESTHETIC ORDERS:**

- ✓ **Patient - Informed consent**

- NPO
- Premedication - advantages, drugs used
- Special instructions - if any

Machine

- Checking the machine
- O₂, N₂O, suction apparatus
- Laryngoscopes, et tubes, airways
- Things for IV accessibility
- Other monitoring systems

INTRAOPERATIVE MANAGEMENT

- Confirm the identification of the patient
- Monitoring - minimum
- Noninvasive & Invasive monitoring
- Induction - drugs used
- Endotracheal intubation
- Maintenance of anaesthesia
- Positioning of the patient
- Blood / fluid & electrolyte balance
- Reversal from anaesthesia - drugs used
- Transferring the patient
- Recovery room – set up and things needed

- **REGIONAL ANESTHETIC TECHNIQUES. (Marks 10)**

- Local Anaesthetic Technique
- Nerve Blocks
- Spinal Anesthesia
- Epidural Anaesthesia

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Annexure "L"

Marks :-120
Time :- 2.00 Hours

Unit 1 (12 Marks)

1. Society, Community, Association.
2. Social Stratification: Caste, Class and Social Stratification in India.
3. Social Institutions: Norms, Values, Folkways and Mores
4. Marriage, Kinship and Family

Unit 2 (12 Marks)

1. Gender inequality and Issues.
2. Stages and Theories of Human Development (Freud, Erikson,)
3. Socialization and its Theories
4. Anxiety Disorders: Phobia, OCD, GAD, Panic Disorder, PTSD

Unit 3 (12 Marks)

1. Theories of Economic Development
2. Indicators of Social Development
3. Population Growth Issues and Challenges
4. Rural Development Programmes (1990 onwards)

Unit 4 (12 Marks)

1. United Nations Organization: Structure and function
2. Non Alignment Movement and its Genesis
3. Fundamental rights, Fundamental duties and Directive principle of State Policy
4. Democracy, Liberty, Equality and Justice

Unit 5 (12 Marks)

1. Panchayati Raj System
2. Social Networking and its Impact
3. Basic Computer Applications (Elementary knowledge)
4. Macdonalisation and its effect

Unit 6 (12 Marks)

1. Concept of social work: Philanthropy and Charity
2. Social work and its Relation with other Disciplines
3. Socil Religious Movements

Unit 7 (12 Marks)

1. Hindu Reform Movement
2. Land Reform Movement in Kashmir
3. Major Peasant and Tribal Movements
4. Spread of Modern Education.

Unit 8 (12 Marks)

1. Human rights: Concept and Evolution
2. Universal Declaration of Human rights
3. Women Rights
4. Child Rights

Unit 9

(12 Marks)

1. Poverty and Unemployment
2. Population Explosion, Global Warming and Climate Change
3. Drug Addiction ,Child Abuse, Delinquency
4. Trafficking, Beggary, Corruption.

Unit 10

(12 Marks)

1. Female foeticide and infanticide
2. Child and Women Welfare Schemes
3. Old age and Disability Schemes.
4. Health and Family Welfare Programmes

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Annexure "M"

Marks :-120
Time :- 2.00 Hours

UNIT I

20 Marks

- (i) Types of Libraries and their Features
- (ii) Role of Libraries in contemporary Society
- (iii) Five Laws of Library Sciences
- (iv) Library legislations in India
- (v) Digital Library
- (vi) Intellectual Property Rights (IPR)
- (vii) National and International Library Associations: ILA, IASLIC, IATLIS, IFLA, FID ALA, ASLIB etc
- (viii) National and intercalation Agencies: UNESCO, OCLC, PRRLF, UGC, INFLIBNET, DELNET etc
- (ix) Information Centres, DRTC, ISI, INSDOC (NISCAIR), NASSDOC, DESIDOC, SENDOC, etc

Unit-II

Marks 20

- (i) Basic Terminology: call Number, Class Number, Book Number, Isolates
- (ii) Classification; concept & purpose.
- (iii) Types and characteristics of classification scheme.
- (iv) ISBD, ISBN, ISSN; classification schemes.
- (v) Features of DDC, UDC, and CC
- (vi) Five Fundamental Categories
- (vii) Notation: Definition and Purpose
- (viii) Library Catalogue; Definition and purpose
- (ix) Cannons of Classification and Cataloguing

Unit-II

I

Marks 20

- (i) Principles of Book Selection
- (ii) Selection Tool; Print and Non-Print Materials
- (iii) Processing of Documents; Accessioning, Classification, Cataloguing, labelling and shelving
- (iv) Difference between catalogue, Accession Register, bibliography and Shelf list.
- (v) Serials/ Journals; Selection and procurement
- (vi) Book Transaction System: Traditional and Modern
- (vii) Stock verification of Books; Methods and Tools
- (viii) Weeding Process

Unit-IV

Marks 20

- (i) Information sources: Definition, types and importance;
- (ii) Information sources- Primary, Secondary and Tertiary.
- (iii) Information Services: Definition and need of reference, documentation and information services.
- (iv) Types of Dictionaries, Encyclopaedias
- (v) Geographical and Biographical Sources
- (vi) Indexing and Abstracting Sources

- (vii) Types of Bibliographies
- (viii) Bibliographies Sources

Unit-V

Marks 20

- (i) Types of Reference service, Ready reference service, Long Rang Reference Service
- (ii) Reference Librarian: Role Skills and Competences
- (iii) User Education/ Information Literacy Skills
- (iv) CAS/SDI
- (v) International Information System; INIS, AGRIS, MEDLARS/MEDLINE, INSPEC
- (vi) Information Seeking Pattern

Unit-VI

Marks 20

- (i) Study of Computer including concept of Hardware.
- (ii) Library Automation Need and Purpose.
- (iii) Need for computer applications, Areas of computer applications. Automation in library Management. Software Packages for Library Management-Essential features
- (iv) Computer and its Units, Computer and its classification.
- (v) Study of Various operating systems.
- (vi) General-purpose application software: Word Processing such as MS-office, lotus.
- (vii) Special Purpose application software: CDS/ISIS.
- (viii) Library Networking: Needs & Purpose.
- (ix) OPAC AND Web-OPAC.

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Annexure "N"

Marks :-100
Time :- 2.00 Hours

1) Basis Mathematics

=20 Marks

- Percentage
- Average
- Time, Work and Distance
- Ration and Proportions
- Problem of Age
- Probability
- LCM, HCF
- Mensuration

2) Basis Reasoning

=20 Marks

- Analogies
- Relationship concepts
- Figure odd one out
- Direct Sense
- Figure Series completion
- Venn Diagram
- Number series
- Coding/Decoding

3) Basis English

=20 Marks

- Articles
- Synonyms
- Antonyms
- Preposition
- Verbs
- Reading comprehension
- Determiners
- Spellings
- Sentences

4) General Awareness and Science

=40 Marks

- General current events (National Level)
- Sports
- India culture
- India history
- Indian geography

- Capital/State
- General Science
- Health, Hygiene and Sanitation
- Geography of Jammu and Kashmir
- Culture of Jammu and Kashmir
- History of Jammu and Kashmir

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ANNEXURE – “O”

➤ **Marks :-120**
➤ **Time :- 2.00 Hours**
(Marks 20)

➤ Anatomy and Physiology, Public Health & Hygiene, Diseases.

- Elementary Physics and Chemistry
- Characteristics of living matter
- The structure of living matter
- The Tissues
- Systems and various parts of Human Body
- Development and types of Bones
- Bones of Head and Trunk
- Bones of the limb
- Joints and Articulations
- Structure and action of Muscles.
- The Chief Muscles of the Body
- The Blood
- The Heart and Blood vessels
- The Circulatory System
- The Lymphatic System
- The Respiratory System
- The Digestive System
- The Liver, Biliary System and Pancreas
- Nutrition and Metabolism
- Endocrine Glands and Exocrine Glands
- The Urinary System
- The Nervous System
- The Ear
- The Eye
- The Skin
- The Reproductive System etc.

National Health Programmes :- These should be practical internship training for six months as recommended by PCI 1080 hours, after two years successful by course before Diploma Pharmacy is awarded.

➤ Public Health and Hygiene.

(Marks 20)

Public Health :-

- History and Development
- Modern concept of public health and comprehensive health care
- Various Health Committees and their recommendations.
- Five Year plans priorities.
- Allocation for medical and Health services.
- Cost analysis of Medical and Health care.
- Health and Family Planning Organisations setup at the National The State, The District and Block levels functions of Primary Health Centre

Diseases :-

- Definition
- Concept and Practice.
- Measures and disease frequency investigation of an outbreak and control field trials.
- Insecticides and resistance, sterilization and disinfection, epidemiological methods and approaches.

➤ **Basic Medical Information Drugs & Antibiotics Basic Medical informations, Drugs & Antibiotics their preparation & Uses. :-** **(Marks 20)**

- Kinds of drugs, characteristics of drugs, Balsems, Gums etc.
- Pharmaceutical Process and Methods
- General directions on dispensing, weighing and measuring. How prescriptions are written, prescription reading. How to calculate doses weights and measures, formulae for converting from one scale to other abbreviations used in prescriptions.
- Doses of drugs, pharmacoepial preparation and their doses, incompatibility, physical, chemical physiological and therapeutical.
- **Suppositories :-** How to prepare suppositories of special medicines pessaries, bougies, plasters etc.
- Ointments, Spray solutions or Nebulas, Inhalations, General rule about preparation of Mixtures.
- Ordinary bazaar medicines, their recognition, doses and uses.

➤ **Records Keeping:** **(Marks 05)**

Stores Records & Procedures :- Clerical procedure in the good inward section. Records and procedures in main stores, classification and codification, keeping of stocks books, preparation of indents and methods of storing drugs.

➤ **First –AID & Home Nursing : Health Education including different types of Bandages, Emergency Health Care Services, Sterilization process & Disinfection procedures.** **(Marks 15)**

- Outline of the First –Aid
- Structure and Functions of the body.
- Dressing and Bandages (Use of Triangular Bandages and Cotton Roller Bandage, Rubber Bandage and different types of Dressing.
- Cardio- pulmonary resusciration.
- Wounds.
- Haemorrhage.
- Shock
- Electric Stock
- Different methods of artificial respiration
- Asphyxia
- Fractures and Dislocation
- Unconsciousness and Fainting
- Epilepsy and Hysteria
- Poisons including food poisoning
 - **Common Conditions :**
 - Foreign body in ear, eye and nose
 - Cramps
 - Frost – Bite
 - Bites and Stings
 - Epistaxis
 - Snake Bite
 - Dog Bite
- Transport of injured persons
 - **Use of Common medicines.**

➤ **Home Nursing** **(Marks 10)**

❖ **Introduction to Home Nursing :-**

- Nurse
- Sick Room
- Bed Making
- Patient's Toilet
- Observation of the Sick
- Infection
- Surgical Techniques
- Diet
- Medicines
- Special Conditions & Treatments
- Bandaging
- Further Observations
- Immunity & Infectious Diseases
- Care of the Aged and Long term patient Person
- Care of the Mentally Ill Healthy Patient
- Special Drugs their Control & Administration
- Preparation of the Patient for Operation and the after care
- Shock and Blood Transfusion
- Special Treatment
- Nursing in Special Diseases
- The Hospital Services
- Preparation for Special Treatment
- Child Birth and Its Management.

➤ **Health Education**

(Marks 05)

- Health Education Principles, Ethics, Attributes of health educator, essential steps and introduction to the main methods in health education. History development and growth of health education in India. Various methods of Health Education.

➤ **Sterilization & Disinfection**

(Marks 10)

- Physical, Chemical and Mechanical Methods etc. Disposal of contaminated Media, Sterilization of Syringes, Glass Wares, apparatus etc.

➤ **Surgical Instruments, their names & uses, Preparation of patient for Operation, Pre & Post Operative patient care:**

(Marks 15)

Surgical Instruments (Their Names & Uses):-

- Instruments for general surgery.
- Operation of the face and Neck
- Operations of the Nose, Throat and Ear
- Ophthalmic Surgery
- Operations on the chest
- Operations on the Genito – Urinary Tract
- Gynecological and Obstetric Operations
- Orthopaedic Operations
- Neuro-Surgical Operations
- Operations on the Cascular System
- Trauma Surgery

Preparation of Instruments Tray :-

- Major Procedures Tray
- Basic / Minor procedures tray

- Limited procedures tray
- Thyroid Tray
- Long Instruments tray
- Biliary Tract Procedures tray
- Choledochoscopy tray
- Basic rigid Sigmoidoscopy tray
- Gastrointestinal procedures tray
- Rectal Procedures tray

Gynecologic and Obstetric Trays :-

- Dilatation of the Cervix and Curettage of the Uterus (D&C) tray
- Cervical Cone Tray
- Laparoscopy tray
- Abdominal Hystrectomy tray
- Caesarian Section tray
- Vaginal Hysterectomy tray

Genitourinary Trays :-

- Vasectomy tray
- Open Prostatectomy tray
- Kidney tray
- Thoracic Trays
- Mediastinoscopy tray
- Thoractomy tray
- Pcemaker tray

Cardiovascular Trays :-

- Vascular procedures tray
- Vascular shunt tray
- Cardiac procedures tray

Orthopaedic Trays :-

- Basic Orthopaedic procedure tray
- Minor Orthopaedic procedures tray
- Hip replacement tray
- Knee or Ankle Arthroscopy tray

Neurologic Procedures Tray :-

- Craniotomy tray
- Laminectomy tray

Otorhinolaryngologic (ENT Trays) :-

- Basic Ear procedures tray
- Nasal procedures tray
- Myringotomy tray
- Tonsillectomy and Adenoidectomy Tray
- Tracheostomy tray
- Antral Puncture tray

Ophthalmic Trays :-

- Basic eye procedures tray
- Eyelid and Conjunctival procedures tray
- Basic Eye Muscle procedures tray
- Dacryocystrohinostomy tray
- Corneal Procedures tray
- Cataract Extraction and Lens procedures tray
- Glaucoma procedure tray
- Basic Eye procedures Microscope tray
- Retinal procedures tray

Pediatric Trays :-

- Pediatric major procedures trays
- Pediatric minor procedures trays
- Pediatric Gastrointestinal procedure trays

➤ **Preparation of Patient for Operation, Pre & Post Operative Patient Care:-**

Pre-Operative Considerations :-

Psychological support of the Surgical patient.

Protection of the Patient in Surgery :-

- Admission Procedure
- Transfer Procedure Position
- Environmental Controls
- Electro Surgery
- Operative Recores
- Counting Procedure
- Sterilization
- Emergencies and Disasters

Safety for Medical Assistant, Pharmacist in a Operation Theatre :-

- In Service Education.
- Body Mechanic
- Fatigue factors
- Radiation Safety
- Infection Control
- Chemical Hazards.

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Annexure "P"

Marks :-120
Time :- 2.00 Hours

Science –I

20 Marks

- *Anatomy and Physiology*
- *Microbiology*
- *Psychology*
- *Sociology*
- *Hygiene*
- *Nutrition.*

Fundamentals of Nursing-I

20 Marks

- *Section "A" introduction to Nursing and Nursing procedures.*
- *Section "B" Nursing techniques*
- *Section "C" First aid and emergency nursing.*

Fundamentals of Nursing-II

20 Marks

- *Section A introduction to Child Health.*
- *Section B introduction to Maternal Health.*
- *Section C introduction to Family Health and Community Health.*

Community Health Nursing-I

20 Marks

- *Section A Domiciliary Midwifery.*
- *Section B Midwifery and Hepernitoy Nursing.*
- *Section C Family planning and family welfare.*

Community Health Nursing-II

20 Marks

- *Section A Nutrition Education.*
- *Section B Health Education.*
- *Section C Communication skills and Audio-visual aids.*

Community Health Nursing-III

20 Marks

- *Section A Basic Medicine and Pharmacology.*
- *Section B Health Problems and Plans.*
- *Section C Communicable Diseases.*
- *Section D Mental Diseases.*

ANATOMY

- i) *Introduction.*
- ii) *Skeletal system over view of skeletal system, Bones, bone development and the repair, axial skeleton, appendicular Skeleton, surface anatomy and land-marks.*
- iii) *Structure and function of joints, types of joints, muscular system introduction over vies of skeletal muscles chief muscles and group of muscles.*
- iv) *Heart, Structure.*

- v) *Respiratory system structure*
- vi) *Human Reproductive System structure and Embryology (Prenatal).*

PHYSIOLOGY

- i) *Introduction.*
- ii) *Organization of living things.*
- iii) *Cells, tissues, organs, cavities and body system.*
- iv) *Typical cell structure, properties of cell, living processes, tissues, types, structure and functions, the skin.*
- v) *Muscular system-Structure.*
- vi) *Muscle contraction and properties of muscle.*
- vii) *Nervous System –division of the nervous system, brain and its functions, cranial nerves, spinal nerves.*
- viii) *Special senses structure function and location of organs of special senses, eye structure and function of visual apparatus, ear structure and function of auditory apparatus.*
- ix) *Maintaining the metabolism of the body circulatory system-blood composition, blood cells and plasma, hemoglobin, blood coagulation bleeding time, blood grouping and cross- matching physiological structure of heart and function, heart sounds and heart rates, circulation – systematic and pulmonary, blood vessels, pulse, venous and capillary system.*
- x) *Digestive system the alimentary tract oral cavity stomach, small and large intestines peristalsis digestion salivary glands. Liver pancreas and gallbladder enzymes absorption and assimilation of food.*
- xi) **SECRETORY** system –Excretory organs location, structure and function. The urinary tract, urine formation composition of urine, micturition. Water and salt balance.
- xii) *Endocrine system-overview of the endocrine system, endocrine glands location, structure and function body temperature regulation.*
- xiii) *Human Reproduction*
Embryology, parental Development, maturation of reproduction Organs.

The male reproductive tract external, organs. The Female reproductive tract external organs, menstrual cycle, hormones and reproduction.

Principles of organizing care according to head of the patient. (Seriously ill, Chronically ill)

Moderately ill, terminally.

Principles of organizing care according at patient group.

Maintenance of supplies, equipments and other facilities.

Records and Reports.

Health records, family care records, medical records, use of diaries by health workers understanding the system of reporting and recording referral system.

Maintaining a Healthy environment cleanliness of unit and sick room cleanliness of furniture, floors, space and surfaces doors and windows disposal of waste, garbage.

NURSING PROCEDURES AND TECHNIQUES

- i) *Meeting hygienic and comfort needs care of skin, care of hair, care of hands, care of eyes, nutrition mouth care elimination, exercise, body.*
- ii) *Maternal health factors.*
Socio-economic factors affecting maternal health.
Section C- Introduction to family health and Community health.
- a) *Family health care.*
The family as integral unit of the health services,

- *Prevention and control of communicable diseases.*
- *Home visiting and domiciliary health.*
- b) *Introduction to Community health.*
- c) *Environmental Health and Sanitation.*
- d) *School health Services.*

COMMUNITY HEALTH NURSING - (I)

Domiciliary Midwifery

- i) *Contacting antenatal mothers.*
 - ii) *Conducting a delivery in the home.*
 - iii) *Post –Natal care.*
- Records to be maintained.*

Midwifery and maternity nursing

- i) *The reproductive system*
- ii) *Growth and development of foetus*
- iii) *Pregnancy*
- iv) *Labour*
- v) *Normal puerperium*
- vi) *Complication of pregnancy*
- vii) *Complication of labour.*
- viii) *Obstetric operations.*
- ix) *Drugs used in obstetrics*

Family planning and welfare.

- i) *Introduction.*
- ii) *National family welfare programme.*
- iii) *Organizing family welfare work.*
- iv) *Family planning methods.*

COMMUNITY HEALTH NURSING

Nutrition Education:

- i) *Introduction to nutrition education.*
- ii) *Nutrition education for material and cold health.*
- iii) *Nutrition education (method and media)*

Health Education:

- i) *Introduction*
- ii) *The Teaching (Learning Proceed)*
- iii) *Approaches used in health education.*
- iv) *Planning health education activities.*
- v) *Community resources for health education.*

Communication Skills & Audio –Visual AIDS :

- i) *Introduction to communication.*
- ii) *Communication skill for health work.*
- iii) *Introduction to Audio-visual aids.*
- iv) *Selection and utilization of audio-visual aids selecting suitable aids for health work.*
- v) *Preparation of audio- visual aids for health work basic skill/competencies.*

Health Problems and Plans :

- i) *Health problems.*
- ii) *Organization and structure of health services and related welfare services.*

iii) *Health planning and programme.*

Communicable Diseases:

- i) *Introduction to communicable diseases.*
- ii) *Immunity and immunization.*
- iii) *Care and treatment of patients with infection.*
- iv) *Specific Communicable diseases and infections, symptoms, prevention and control and care in specific communicable diseases and infections.*
Malaria, filarial, dengue, typhoid, cholera infections hepatitis, other gastrage intestinal infections-acute waste enteritis, dysenteries small-pox, chicken pox mumps, measles, diphtheria. Trachoma, conjunctivitis, worm infestations hookworm round worm. Threadworm, amoebiasis, rabies, tuberculosis, pertussis.

Mental diseases:

- i) *Introduction*
- ii) *Resources and facilities for prevention and early detection of mental illness, use of family health care services.*
- iii) *Maternal and child health services.*
 - *School health services.*
 - *Primary health centre facilities.*
 - *Community, health worker as a resource.*
- iv) *Prevention of mental illness.*
- v) *Early detection of mental disorders.*
- vi) *Mental diseases.*

COMMUNITY HEALTH NURSING I (II)

Environmental sanitation:

- i) *Basic sanitation needs all village level towns and semi-urban areas.*
- ii) *Disinfection and disinfectants, sterilization, antiseptics, disinfectants odorant, detergent, sterilization.*
- iii) *Environmental sanitation aspects of communicable diseases communicable diseases control.*
- iv) *Venereal diseases.*

Microbiology:

- i) *Introduction*
Classification of micro-organisms, characteristic, of bacteria, viruses, conditions affecting and growth of bacteria, parasites, fungi yeasts and mold.
- ii) *Universal presence of Micro-organisms useful bacteria and micro-organism in the environment. Micro-organism in the human body normal flora, Micro-organism in water food and milk.*
- iii) *Sources and mode of infection.*
Sources of infection, mode of transmission infectin-factors which favour and hinder infection immunity, vaccines.
- iv) *Pathogenic Micro-organism.*
Transmitted from, respiratory tract. Alimentary tract, food, food poisoning blood-borne pathogenic organism.
- v) *Collection of specimens for bacteriological examination.*

Sociology:

- i) *Introduction.*
Group-primary and secondary, in group and out groups, structure, activities of groups organization of groups Urban and rural administrative pattern panchayats and corporations, crowd public and audience.

- ii) *Social process.*
- iii) *Social controls.*
- iv) *Social stratification.*
- v) *Marriage and family.*
- vi) *Community rural and urban community.*

Psychology:

- i) *Factors influencing human behavior.*
- ii) *Life stages and behavioral patterns.*
- iii) *Emotions and behavior.*
- iv) *Defence mechanism and behavior.*
- v) *Social behavior and interpersonal relations.*
- vi) *Learning, motivation and change in behavior.*

Hygiene:

- i) *Introduction to hygiene and healthful living, consents of health and disease. Factors influencing health and healthful living. Health habits and practice. Scientific principles related to maintenance of normal circulation, respiration, digestion sensory functions, normal skeletal alignment joint function and motor function.*
- ii) *Physical health:- Skin care, cleanliness clothing care of the hair, prevention of pediculosis. Dental care and oral hygiene, care of hands, hygiene of elimination and menstrual hygiene, mental hygiene.*
- iii) *Mental hygiene and health in childhood ensuring mentally healthy growth in later childhood, need for friendship, games and plays, affection and recognition. Mental hygiene, approach to some problems speed problems, reading difficulties, learning problems, day dreaming.*
- iv) *Mental hygiene and health in adolescence. Preparation of girls for menstruation, sex-education.*
- v) *Mental hygiene and health in adulthood. Ensuring mental health in adulthood satisfaction on the job, marriage, marital life, parental responsibilities.*
- vi) *Mental hygiene and health in old age ensuring health in old age and need for preparation for retirement.*
- vii) *Physical health, feature, exercise, rest relaxation and sleep care of the fact, foot wear, care of eyes, ear more and throat food values.*
- viii) *Periodic Health Examination.
Health records, delection and correction of defects. Prevention and early treatments of common ailments, common could, indigestion constipation, headache.*
- ix) *Health in home.*
 - *Disposal of refuse, waste.*
 - *Latrines and sanitation, ventilation.*
 - *Safety in the home.*
 - *Sanitation in animal sheds.*
- x) *Mental hygiene and health.
In adults, in-infancy and early childhood. Like, feeding weaving, thumbsucking, toilet-training, need for security, affection, love, adventure.*

Nutrition:

- i) *Introduction to the study of nutrition, definition, relation of nutrition of health classification and functions of food-body building, energy yielding and protective foods*
Nutrients- Carbohydrates, protein, fats, Eatmine.
Mineral- functions, sources and daily requirements of each caloric requirements, water and cellulose.
- ii) *Nutritive valve of foodstuffs*

<i>Cereals</i>	<i>Fruits</i>	<i>Fats and oils</i>
<i>Pluses</i>	<i>Milk and Milk products</i>	<i>Sugars condiments</i>
<i>Vegetables</i>	<i>Egg, meat and Fish</i>	<i>Spices and beverages</i>

- iii) *The balance diet.*
Definition, factors to be considered in planning meals, improvement of diars, selection of foods, cultural factors improving maternal nutrition and child nutrition. Modified diets- liquid bland, soft, full.
- iv) *Preparation and preservation of foods general.*
General principles of cooking.
Methods of cooking.
Effects of cooking on nutrients and common foodstuffs, preservations of food- household methods.
Food hygiene simple household measures.
- v) *Malnutrition.*
- *Malnutrition and ;under nutrition.*
 - *Deficiency diseases in the country.*
 - *Cultural factors in nutrition, food fats, food habits, food adulteration practive injurious to health.*
Nutrition education-principles of imparting nutrition knowledge.

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Annexure "Q"

SYLLABUS FOR WRITTEN TEST

Marks :-120
Time :- 2.00 Hours

1. A) Anatomy :	10 Marks
I.	Histology-cell tissue of the body, epithelium, connective tissue, cartilage, bone, blood, lymph, muscles, nervous system.
II.	Osteology- formation, classifications, functions, growth and repair of bones.
III.	Embryology- Ovum, Spermatozoa, Fertilization, organogenesis, Development of various systems.
IV.	Blood Vascular system –arteries, capillaries, veins, lymphatic system.
V.	Respiratory System –anatomy of larynx, trachea and bronchi, the pleura, the lungs.
VI.	Digestive system
VII.	Urogenital system
VIII.	Surface Anatomy.

B) Neuro- anatomy: Microscopic and gross study of : 05 Marks

I.	Peripheral Nerves
II.	Neuromuscular Junction
III.	Sensory Organs
IV.	Spine Cord- Segment & Areas
V.	Brainstem
VI.	Cerebellum
VII.	Inferior colliculi
VIII.	Superior Colliculi
IX.	Diencephalon
X.	The Hypothalamus
XI.	The Hypothalamus
XII.	The thalamus
XIII.	The Cerebral Hemispheres
XIV.	The Corpus Striatum
XV.	The Rhinencephalon
XVI.	The Lateral Ventricles
XVII.	The Meninges
XVIII.	The Blood supply of the Brain

2. HUMAN PHYSIOLOGY	05 Marks
I.	Structure of Human Cell
II.	Elementary tissues of Body
III.	Blood , composition, function , Grouping Blood Disorders.
IV.	CVS(Cardio Vascular System) Structure of Heart, Cardiac cycle, Hypertension Cardiac disorders reference to Physiology.
V.	Digestive System –Physiology anatomy, Process of digestion, organs of digestion and disorders.
VI.	Respiratory system –structural Physiology process of respiration
VII.	Excretory system; detailed structure of kidney , funtction, disorders,
VIII.	Elementary knowledge of structure and function of organ of taste, smell, eye and skin.
IX.	Endosionology ; All the endosine glands in detail
X.	Reproductive system; physiology /Anatomy
XI.	Introduction to pathology
XII.	Repair and inflammation
XIII.	Pathological terms

- XIV. Pathology of various organs
- XV. Role of pathology in physiotherapy
- XVI. Review of pathology changes of various organs and their treatment
- XVII. Drugs action on central nervous system. Anesthetics, alkaloids, narcotics, analgesics, antipyretics, sedatives, anticonvulsants,
- XVIII. Drugs action on cardiovascular System, neuromuscular system, respiratory system.
- XIX. Drugs acting with Peripheral Nervous system
- XX. Chemotherapy
- XXI. Hormones and drugs effecting Endocrine functions
- XXII. Vitamins
- XXIII. Metallic and other Inorganic compounds
- XXIV. Immunological agents
- XXV. Diagnostics.

3. EXERCISE THERAPY & MASSAGE 05 Marks

- I. Mechanical anatomy of motion and posture
- II. Exercise of the shoulder and hip and evaluation
- III. Exercise of the Foot and Hand evaluation
- IV. Exercise of the Knee and elbow and evaluation
- V. Vicarious motion
- VI. Joint motion assessment
- VII. Manual muscle examination
- VIII. The therapeutic gymnasium
- IX. Exercise based on Neuro Physiological Principles
- X. Crutch and cane exercises
- XI. Gait training
- XII. Principles of therapeutic exercise
- XIII. Postures
- XIV. Exercises for healthy persons
- XV. Activities of daily living
- XVI. Exercise of spine
- XVII. Massage
- XVIII. Suspension therapy
- XIX. Neuro muscular co-ordination
- XX. Starting postions
- XXI. Cryotherapy.

4. ELECTRO THERAPT & ACTINO THERAPY 20 Marks

A) Medical Electronics

- I. Electrical fundamentals
- II. Electron tubes
- III. Power supplies
- IV. Amplifiers
- V. Oscillators
- VI. Cathocde ray tubes
- VII. Transistors
- VIII. Recorders
- IX. Transducers
- X. Radiation
- XI. Principles of designs and circuits of infrared and ultra violet generators, shortwave diathermy, microwaves, ultrasonics and electrical stimulators
- XII. Signal processes
- XIII. Display devices and indicators
- XIV. Magnetic tape recorders
- XV. Data transmission and processing

B)

- I.** Physics of heat
- II.** Thermometry
- III.** Biophysics of diathermy
- IV.** Physiology of heat and cold
- V.** Thermal radiation, pain and injury
- VI.** General principle of thermotherapy
- VII.** Conducting heating
- VIII.** Luminous and infra-red heating
- IX.** High frequency instrumentation
- X.** Short wave diathermy
- XI.** Microwaves
- XII.** Ultrasound therapy
- XIII.** Instrumentation of electrotherapy
- XIV.** Therapeutic electro stimulation
- XV.** Iontophoresis
- XVI.** Electrosleep Therapy and anaesthesia
- XVII.** Instrumentation for ultraviolet therapy
- XVIII.** Physiological affects of Ultraviolet radiation
- XIX.** Low frequency currents
- XX.** T.N.S.
- XXI.** Inteferential therapy
- XXII.** Wax Therapy

C) ELECTRO –PHYSIOLOGY

- I.** Bio-Electricity
- II.** Electric potential generated by cell
- III.** Electrogenic membrane response
- IV.** Chemo responsive eletrogenic system
- V.** Propagation of nerve impulse
- VI.** Neuromuscular Junction
- VII.** Synapse
- VIII.** Muscle Electronic
- IX.** Electrophysiology of CNS
- X.** Chronaxy
- XI.** Strength duration curves
- XII.** Electromyography
- XIII.** Electrical duration curves
- XIV.** Nerve conduction studies
- XV.** Microneurography
- XVI.** Reflex Physiology Monosynaptic and Polysynaptic reflexes
- XVII.** Spinograms
- XVIII.** Cerebrai evoked potentials.

5. PSYCHOLOGY**05 Marks**

- I.** Definition and scope of psychology in relation to occupational therapy Physiotherapy.
- II.** Methods of studies in Psychology.
- III.** Psychological Development of human individual from conception to birth to old age.
- IV.** Special needs, characteristics and problems of the various groups of Handicapped.
- V.** Learning, factors affecting learning, disabilities techniques to deal with implications of various handicaps in the learning process. Principles of learning for various handicapped groups, Teacniques of motivating the handicapped children.
- VI.** Adjustment, criteria of mental health, adjustment problems faced by handicapped children, counseling and guidance with special reference to the physically and mentally handicapped.

- VII.** Interaction with the family, community and poor groups Communication pattern, specific problems faced by handicapped, development of social skills and sensitivity training.
- VIII.** Role of Psychologist in Rehabilitation of the handicapped.

6. MEDICINE 10 Marks

General Medicine including Respiratory Diseases

- I.** Infection and antibacterial agents.
- II.** Infections and Diseases
- III.** Poisons and Venoms
- IV.** Chemical and Physical agents carrying diseases
- V.** Diseases of Metabolism.
- VI.** Deficiency Diseases
- VII.** Diseases of Endocrine Glands.
- VIII.** Diseases of Digestive System.
- IX.** Diseases of Lymphatic System
- X.** Diseases of Blood
- XI.** Diseases of Cardio-vascular system, Circulatory failure, Ischemic heart disease, Hypertension Pulmonary Heart Diseases, Congenital heart Disease, Peripheral vascular diseases, Embolism and Thrombosis, Collagen diseases.
- XII.** Diseases of the Respiratory System-the trachea, the bronchi, the lungs, the diaphragm, the pleura.
- XIII.** Diseases of the Kidney
- XIV.** Diseases of the Skin sensory disorders, Pigmentary Anemielies, vasomotor, Disorders, Dermatitis, Coccal Infections, Fungus Infections, Cutaneous, Tuberculosis, Virus infection, Parastitic infections, Erythmatous conditions, Scleroderma of the Hand, Tropical skin diseases.
- XV.** Psychiatry:
- Definition and introduction to Psychiatry in relation to OT & PT
 - Concept of normal and abnormal
 - Behavior disorders:- Causes & management
 - a) Psychonenrotic disorders
 - b) Psychotic disorders
 - c) Psychosomatic disorder
 - Techniques of Therapy
 - Psycho Therapy:
 - a) Group Therapy
 - b) Psychodrama
 - c) Behaviour modification

7. SURGERY 15 Marks

A) General surgery and cardio-vascular and thoracic surgery.

- I.** Surgical wounds, haemorrhage, shock, water and Electrolyte Balances, Burns.
- II.** Surgery of head and neck , alimentary systems and genitor-urinary system x
- III.** Neuro Surgery
- IV.** Cardio-Vascular and Tghoracic surgery
- V.** Gynaecology and obstetrics: pelvic inflammatory conditions, complications during and following pregnancy prolapsed uterus.
- VI.** ENT

B) ORTHOPAEDICS

- I.** Postural defects anteroposterior and lateral curve of the spine, the feet genu valgum genu varum.
- II.** Back pain

- III.** The spine, the intervertebral disease, osteoporosis, Ankylosing spondylitis, spina bifida, torticollis, tuberculosis of the spine and sacro- iliac joints Osteomyelitis, Tumours.
 - IV.** The Hip congenital dislocation , coxa vara, tuberculos bursitis
 - V.** The knee- injuries to medical ligament, lateral ligament, Semilunar cartilages, cruciate ligament, chronic strain , chondromalacia patella, locking rheumatoid Arthritis
 - VI.** The Foot and ankle painful feet, pesavus, halux, valus gout, painful heel, the ligaments of the ankle tuberculosis,
 - VII.** The foot and ankle painful feet, pesavcus hallux valgus Gout painful heel the ligaments of the ankle, Tuberculosis, stress fracture
 - VIII.** The shoulder grirdle pain the shoulder, cervical spondylosis, carpal Tunnel syndrome, cervico Brachial Junction Recurrent dislocation of the shoulder, Tuberculosis.
 - IX.** The elbow tennis elbow, myositis ossificans, ulnar palsy, tuperculosis.
 - X.** The wrist and hand tenosynovitis, tuberculosis ganglion, rupture of tendons contractures.
 - XI.** Pyogenic infection
 - XII.** Tuberculosis
 - XIII.** Chronic aerthritis rheumatoid and osteoarthritis
 - XIV.** Diseases of nervous system, polio myelitis, cerebral Palsy
 - XV.** Common fractures o spine and extremities.
 - Trauma Therapy
 - Play thereaphy
 - Drug Therapy
 - E.C. T.
- The role of psychiatrist in dealing with the problems of mental health
- XVI.** Paediatrics.
 - XVII.** Geriatrics
 - XVIII.** Nursing and Bandaging

C)

- I.** Disorders of functions in the context of Pathophysiology & Anatomy
- II.** The Cranial Nerves
- III.** Infections of the Nervous System
- IV.** Disorders of the Cerebral Circulation
- V.** Demyelinating diseases of the nervous system
- VI.** Extropyramidal syndrome
- VII.** Tumours and the nervous system
- VIII.** Conventional and degenerative disorders
- IX.** Disorders of the spinal Cord and Cauda Equina
- X.** Toxic disorders
- XI.** Metabolic disorders
- XII.** Deficiency disorders
- XIII.** Disorders of the peripheral nerves
- XIV.** Disorders of the Muscles
- XV.** Disorders of autonomic nervous system
- XVI.** Psychological aspects of neurology.

8. PHYSICAL THERAPY IN MEDICAL CONDITIONS 15 Marks

A) PHYSICAL THERAPY IN NEUROLOGICAL CONDITIONS

- I.** Examination of Neurological disorder and principles of treatment
- II.** Hemiplegia, paraplegia, cerebral palsy, Tabes dorsalis, cerebellar ataxia, extra pyramidal lesions.
- III.** Disseminated sclerosis, muscular atrophy, amyotrophic lateral sclerosis, progressive muscular atrophy, syringomyelia, sub acute combined degeneration of cord
- IV.** Peripheral Nerves lesions
- V.** Neuritis and Neuralgia Brachial sciatica and facial palsy

- VI. Infections-Poliomyelitis, Meningitis, Encephalitis, Polyneuritis
- VII. Myopathies
- VIII. Paediatrics and Geriatrics

B)

- I. **Pathological conditions:**
 - i. Review of pathological changes and principles of the treatment by physiotherapy of: Inflammation acute chronic and suppurative.
 - ii. Oedema Traumatic, Obstructive, Paralytic, Oedema due to poor muscle and laxity of the fascia.
- II. **Arthritis and Allied conditions:**
 - i. Osteoarthritis generalized, degenerative and traumatic, spondylosis and disorders
 - ii. Rheumatoid arthritis, Still's disease, infective arthritis
 - iii. Spondylitis, Ankylosing spondylitis
 - iv. Non articular Rheumatism Fibrositis, Myalgia, Bursitis, Periathritis etc
- III. **Diseases of the Reparatory System:**
 - i. Mechanism of Respiration
 - ii. Examination of chest of patient and principles of physiotherapy treatment.
 - iii. Bronchitis, Asthma, Lung Abscess, Bronchiectasis, Emphysema
 - iv. Pleurisy and Empyema, Pneumonia
 - v. Bacterial Disease-Tuberculosis
 - vi. Tumors
- IV. **Common conditions of Skin:**
Alopecia, Psoriasis, alopecia, Leucodema, Leprosy etc.
- V. **Common Cardiac Disorders:**
Thrombosis, Embolism, Buerger's disease, Arteriosclerosis, Thrombophlebitis, Phlebitis, Gangrene, Congestive Cardiac failure, Hypertension, Rheumatic fever etc.
- VI. **Deficiency Diseases:**
Rickets, Osteomalacia etc.

9. Physical Therapy in Surgical Conditions 15 Marks

A)

- I. **Orthopaedic and fractures**
 - i. Fractures and dislocations
 - ii. Types of displacement
 - iii. Classification
 - iv. Immediate, late signs and symptoms
 - v. Changes at fracture site and its surrounding tissues
 - vi. Reasons for union, non-union, delayed union
 - vii. Healing of fractures and factors influencing it
 - viii. Common fractures of upper and lower extremity and their complications
 - ix. Methods of reduction and fixation
 - x. Corrective surgery
 - xi. Arthroplasty, Arthrodesis, Osteotomy, Tendon, Transplant, Soft Tissue release, Grafting.
 - xii. Physiotherapy treatment as applicable to above conditions.
- II. **INJURIES**
 - i. Soft tissue injuries: synovitis, Capsulitis Volkmann's ischemic contracture etc
 - ii. Crush injuries
 - iii. Repair of injured tendon and nerves

- iv. Injuries of semilunar cartilage and cruciate ligaments knee: Physical Therapy treatment as applicable to above conditions.

III. Deformities:

- i. Congenital, torticollis, Cartilage and cruciate ligaments knee: Physical Therapy Treatment as applicable to above conditions
- ii. Acquired: Scoliosis, Kyphosis, Lordosis, coxa vara, Genu Valgum, Genu varum and pervuratum, Planus and other common deformities.
- iii. Other miscellaneous Orthopaedic conditions commonly treated by Physiotherapy.
- iv. Physical therapy treatment related to above conditions.

IV. Amputations:

- i. Traumatic, elective, common sites of amputation in Upper & Lower extremities Advantages and disadvantages physical Therapy treatment as applicable to care of prosthetic training with emphasis on Lower extremity.

B)

I.

Complications common to all operations: pre and post operative physiotherapy.

II.

Wounds, local infections, ulcers Surgical procedures related to peripheral vascular disease.

III.

Burns –Degree, Grafting of skin.

IV.

General abdominal surgery and obstetrics and Gynaecology.

a) Thoracic Surgery

- i. Thoracic incisions pre and post operative treatment and later rehabilitation of the patient.
- ii. Lobectomy, pneumonectomy, Thoracotomy, Thoracoplasty
- iii. Operations on Chest Walls
- iv. Common complications with emphasis to atelectasis Pneumothorax, bronchopulmonary fistula, pre and post operative physiotherapy related to Cardio thoracic surgery
- v. Operations on Pericardium and Heart, Chronic Constrictive pericarditis, valvular in competence and Stasis, mitral, valvotomy, tetralogy of Fallot.

b) Ear, Nose and throat conditions:

c) Neuro surgery otitis sinusitis vaso motor, Rhinorrhoea, tonsillitis physiotherapy it above conditions.

- i. Cranial Surgery:
- ii. Head Injury, intra cranial abscess, Intracranial Tumours.
- iii. Surgery of spinal Cord and Cauda Equina, spina Bifida and its complications, infections of the spine , Epidural Abscess, Tuberculosis, pre and post operative physiotherapy laminectomy, treatment related to above conditions.
- iv. Surgery of peripheral Nerves , peripheral nerve injuries , pre and post operative physiotherapy treatment related to above conditions.

d) Pre and Post Operative Physiotherapy, related to Plastic Surgery:

- i. Tendon transplantation in Leprosy, Polio etc. Pre and Post operative Physiotherapy treatment related to above conditions.

10.	<u>Bio-Mechanics and Kinesiology</u>	05 Marks
I.	General Principles	
II.	Force, axis, planes, center of gravity levers	
III.	Classification of force systems	
IV.	The linear force system resultant force equilibrium	
V.	Parallel forces in one plane	
VI.	Concurrent and general force system	
VII.	Friction	
VIII.	The fundamental principles of motion	
IX.	Locomotion.	
11.	<u>Disability prevention and Prehabilitation</u>	10 Marks

- I.** Introduction
- II.** Definition concerned in the phase of disability process
- III.** Definitions concerned with cause of impairment, functional limitation and disability
- IV.** Rehabilitation and disability prevention
- V.** Present rehabilitations services
- VI.** Reservation & Legislation for rehabilitation services for the disabled
- VII.** Community and Rehabilitation
- VIII.** Basic principles of Administration, Budget, Approach Personnel and Space etc.
- IX.** Contribution of Social worker towards rehabilitation
- X.** Vocational evaluation and goals for disabled.
- XI.** Rural rehabilitation in-corporated with PHC's
- XII.** Principles of Orthotics & Prosthetics:
 - Lower Extremity orthotics/Upper extremity; orthosis
 - Spinal Orthotics
 - Upper extremity prosthetics
 - Lower Extremity Prosthetics
- XIII.** Principle of Communication: Impairment
 - Speech Production
 - Communication disorders secondary to Brain damage
 - Aphasia and its treatment
 - Dysarthria and its treatment
 - Non- aphasic language disorders
- XIV.** Code and Conduct
- XV.** Ethics and Management:
 - a) Principles in Management of Social Problems:**
 - Social needs of the patient
 - Rehabilitation centre Environment
 - The Social worker as a Member of the Rehabilitation Team
 - Community Resources
 - b) Principles in Management of Vocational Problems:**
 - Vocational Evaluation
 - Vocational goals for the disabled
- XVI.** Mental Subnormality:
 - Identification and assessment of the mentally subnormal
 - Classification of the Mentally subnormal
 - Common characteristics of different categories of the mentally subnormal
 - Training of the mentally subnormal
- XVII.** Definition Scope and importance of A. D. L.
- XVIII.** Goals of Self Help Devices
- XIX.** Teaching A. D. L. in the following areas:-
 - Wheel Chair Activities
 - Bed Activities
 - Self Care Activities
 - Toilet, Eating Dressing, Miscellaneous Hand Activities.
- XX.** Principles of design materials used
- XXI.** A. D.L Form
- XXII.** A. D. L. Room
- XXIII.** Relationship of ADL to occupational Therapy and Physiotherapy
- XXIV.** National Health Programmes
- XXV.** Bio-Medical Waste.

(Sachin Jamwal) KAS
Secretary

