सत्यमेव जयते

JAWAHARLAL INSTITUTE OF POSTGRADUATE MEDICAL EDUCATION & RESEARCH

(An Institution of National Importance under Ministry of Health & Family Welfare, Govt. of India)

Dhanvantri Nagar, Puducherry-605006.

MBBS Revised Curriculum

Phase – III

Final MBBS Part – I

(Clinical Subjects)

(Approved by 12th Standing Academic Committee, JIPMER)

2018

CURRICULUM COMMITTEE

1.	**Dean (Academic)**	**Chairperson**
2.	**Head of the Department of Anatomy**	**Member**
3.	**Head of the Department of Biochemistry**	**Member**
4.	**Head of the Department of Physiology**	**Member**
5.	**Head of the Department of Microbiology**	**Member**
6.	**Head of the Department of Pathology**	**Member**
7.	**Head of the Department of Pharmacology**	**Member**
8.	**Head of the Department of Forensic Medicine**	**Member**
9.	**Head of the Department of P & SM**	**Member**
10.	**Head of the Department of Medicine**	**Member**
11.	**Head of the Department of Paediatrics**	**Member**
12.	**Head of the Department of Surgery**	**Member**
13.	**Head of the Department of Obst. & Gynae.**	**Member**
14.	**Head of the Department of Psychiatry**	**Member**
15.	**Head of the Department of Dermatology**	**Member**
16.	**Head of the Department of Orthopaedics**	**Member**
17.	**Head of the Department of ENT**	**Member**
18.	**Head of the Department of Ophthalmology**	**Member**
19.	**Head of the Department of Anaesthesiology**	**Member**
20.	**Prof. & Head, Department of Medical education**	**Member**
21.	**Faculty(Academic)**	**Member Secretary**

ACADEMIC AFFAIRS MEMBERS

1. Director	**Chairman**
2. Dean (Academic)	**Member Secretary**
3. Faculty (Academic)	**Member**
4. Controller of Examinations	**Member**
5. Assistant Controller of Examinations	**Member**
6. HOD of Medical Education	**Member**

ACKNOWLEDGEMENT

A curriculum is considered as the “heart” of any learning institution which means that any college or university cannot exist without a curriculum. With its importance in formal education, the curriculum has become a dynamic process due to the changes that occur in our society. Curriculum reform is a challenging and difficult task. Even the effort to ascribing a single definition to curriculum is difficult. Curriculum serves as a body of knowledge to be transmitted. It is also viewed as a process, and as praxis.

I express my heartfelt gratitude to the Director, JIPMER who inspite of being extraordinarily busy in his schedule spared his valuable time for providing guidance in making reforms in this curriculum.

I take this opportunity to express my deepest gratitude to Dr.D. Kadambari, HOD of Medical Education, Dr. Debdatta Basu, Professor (Sr.Scale) of Pathology, Dr. Zayapragassarazan. Z, Additional Professor of Medical Education, Dr. Nanda Kishore Maroju, Additional Professor of Surgery, Dr. Santosh Kumar, Technical Consultant, Medical Education and Head of the Departments and faculty members of ENT, Ophthalmology, and Preventive & Social Medicine who earnestly offered their support to develop this curriculum.

I would also express my thanks to the staff members of academic section for their support in bringing out this curriculum in an effective manner.

Dr. R.P. SWAMINATHAN
Dean (Academic)

PREAMBLE

Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, under Government of India since the year 1956, is one of the leading Medical Institutions of India. Spread over a sprawling 195 acre campus in an urban locale of Puducherry (formerly Pondicherry), The Institute was functioning under the administrative control of Directorate General of Health Service, Ministry of Health and Family Welfare, New Delhi On 14-7-2008 JIPMER has been declared as an "Institution of National Importance" by an Act of Parliament, JIPMER, Puducherry. A copy of the Act was Gazette notified on 14-7-2008.In order to demonstrate high standard of medical education on par with international level JIPMER is empowered to set patterns in Undergraduate and Postgraduate Medical Education in all its branches to encourage experiments in the curriculum as per the act and it is outside the jurisdiction of Medical Council of India. The Institution is now empowered to award Medical Degrees, Diplomas, etc., under the clauses 23 & 24 of the said Act. Such Degrees / Diploma, etc., shall be deemed to be included in the schedules to the respective Acts governing Medical Council of India, Indian Nursing Council and Dental Council of India, entitling the holders to the same privileges as those attached to the equivalent awards from the recognized Universities of India.

JIPMER imparts Undergraduate (UG), Postgraduate (PG) and Super Specialty Medical Training through a working hospital (JIPMER Hospital) with bed strength of 2134.Undergraduate degrees M.B.B.S., B.Sc. Nursing, B.Sc. Allied Medical Sciences and post graduate degrees M.Sc., M.D., M.S are offered in 43 disciplines. Super specialty courses (D.M./ M.Ch.) are offered in the following disciplines (Cardiology, Neurology, Cardiothoracic Surgery, Neurosurgery, Urology, Plastic Surgery, Pediatric Surgery, Pediatric Critical care, Neonatology, Clinical Immunology, Clinical Pharmacology, Nephrology, Medical Oncology, Endocrinology, Surgical Oncology, Cardiac Anaesthesia, Medical Gastroenterology and Surgical Gastroenterology). In addition to this Post-Doctoral Fellowship courses are also offered in 12 disciplines. Full-time Ph.D. Programs are also available in eleven disciplines as on date. Master of Public Health and Post Basic Diploma Courses in Nursing were started in January 2014. JIPMER also has started its outreach campus at Karaikal with an intake of 50 students for MBBS course, from the academic session 2016-17.

CONTENTS

SL. NO	SUBJECT	PAGE NO.
1	**OUTCOMES OF MBBS COURSE**	7
2	**GUIDELINES FOR IMPLEMENTATION**	8
3	**DEPARTMENTWISE CONTENT**	9
4	**TIMETABLE**	23
5	**EXAMINATION REGULATIONS**	24
6	**LEARNING RESOURCE MATERIALS**	25
7	**APPENDIX-I – MODEL QUESTION PAPERS**	27

1. OUTCOMES FOR MBBS COURSE

A. GOAL

Developing graduates, who are capable of independently rendering comprehensive primary healthcare and well versed with fundamentals of course disciplines.

For rendering comprehensive primary healthcare independently, entrustable professional activities (EPAs) need to be performed using necessary Competencies such as CanMEDS (Canadian Medical Education Directions for Specialists). One of the important EPAs is diagnosing and managing Clinical Presentations. Skills include laboratory and clinical procedural skills.

B. ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAs)

1. Diagnosing and managing common Clinical Presentations
2. Diagnosing and providing first-line care for medical and surgical emergencies
3. Performing general medical procedures
4. Defining and managing common health problems of the community
5. Implementing National Health Programmes
6. Participating in health quality improvement initiatives

C. COMPETENCIES (CanMEDS)

1. Medical expertise
2. Communication
3. Collaboration
4. Professionalism
5. Health advocacy
6. Leadership
7. Scholarship

D. LIST OF CLINICAL PRESENTATIONS

E. ESSENTIAL SKILLS LIST FOR MBBS

F. OBJECTIVES FOR EACH DEPARTMENT

1. To learn fundamentals of the discipline
2. To enable achievement of JIPMER MBBS Curricular Goal

2. GUIDELINES FOR IMPLEMENTATION OF MBBS PROGRAMME

A. OVERALL GUIDELINES

1. Entrustable Professional Activities (EPAs), CanMEDS Competencies and skills to be facilitated and assessed formatively and summatively throughout the course to enable achievement of capability to render comprehensive primary healthcare.
2. Fundamentals of course disciplines to be facilitated and assessed formatively and summatively throughout the course to enable further studies in various disciplines.
3. Integrated Learning to be facilitated by systems-based temporally synchronized teaching- learning and intra-departmental horizontal and vertical correlations of content.
4. Adult learning principles to be followed in teaching-learning and student centered learning strategy to be used.
5. A minimum of 10% of simple theory content in a module to be assigned for self-directed learning. Peer-assisted learning to be used.
6. Early clinical exposure to be used in Phase I. Teaching-learning of Basic Sciences to be included in Phase III.
7. Electives to be included in Phase III.
8. Student doctor method of clinical teaching to be incorporated.
9. Skills to be acquired and certified in skills lab, diagnostic lab and clinical areas.
10. E-learning methods to be used.
11. A Foundation Course to be conducted before MBBS Phase I.
12. Existing time-frame and teaching hours to be maintained.
13. Departmental identities to be maintained in teaching-learning program, examinations and mark sheets.

B. GUIDELINES FOR TEACHING-LEARNING

1. Lectures to include active learning strategies.
2. Practicals to emphasize individual learning of skills.
3. Clinical teaching to emphasize individual learning of skills.
4. Skills lab to be used for skills learning.
5. Self-learning to be promoted by use of e-learning. Peer assisted learning to be promoted through discussions.
6. Spiral curriculum model to be used in clinical teaching-learning which has first cycle in Phase I, second cycle in Phase II and third cycle in Phase III.
7. Student doctor method to be used in clinical teaching using Reporter-Interpreter- Manager-Educator (RIME)strategy

C. GUIDELINES FOR ASSESSMENT

1. Entrustable Professional Activities (EPAs) and CanMEDS Competencies to be assessed in formative and summative assessments.
2. Skills to be assessed and certified in skills lab and in practical and clinical sessions using performance criteria.
3. Assessment methods to include assignments, projects, portfolios, MCQs, OSPE and OSCE.

D. GUIDELINES FOR PROGRAMME EVALUATION

Programme evaluation to be done throughout the course.

E. GUIDELINES FOR STUDENT SUPPORT

Student support to be provided throughout the course.

F. GUIDELINES FOR FACILITATION OF IMPLEMENTATION

Central facilitation to be provided throughout the course.

3.**DEPARTMENTWISE CONTENT**

OTO-RHINO LARYNGOLOGY (ENT)

1.	**EAR**
Theory	• Anatomy: external, middle and inner ear. Anatomy of facial nerve • Anatomy and physiology of Eustachian tube • Anatomy and pneumatisation of temporal bone • Physiology of hearing and vestibular function • Bacterial flora, specific antibiotic therapy of upper respiratory infection • Common antibiotics used in ear infections; acute and chronic, topical antibiotics, ototoxic and vestibulotoxic drugs
Clinical Conditions	• Symptoms of ear disease and referred pain in the ear. • Examination of the Ear: Tuning fork tests: Rinne, Weber and Absolute bone conduction. Caloric test, Positional test. Instruments for ear examination. • Eustachian tube function tests • Deafness: types and causes. • Diseases of the external ear: Perichondritis; otitis externa; cerumen; foreign body, hematoma auris, Malignant otitis externa, Keratosis Obturans, preauricular sinus, Myringitis granulosa • Diseases of the middle ear: Acute and Chronic suppurative otitis media (Mucosal and squamosal disease); Otitis media with effusion, Tympanosclerosis, Adhesive otitis media, Tuberculous otitis media. • Audiometry – Pure tone; Impedance Audiometry- basics, Assessment of hearing in Paediatric patients. (Basics) • Determination of type and degree of hearing loss by pure tone audiogram. • Facial nerve-anatomy, functions and clinical evaluation. Bell's palsy • Congenital hearing loss and delayed speech development. • Complications of otitis media, intratemporal and intracranial: Mastoiditis (acute and chronic); facial palsy, labyrinthitis; petrositis; lateral sinus thrombosis; otogenic meningitis; otogenic brain abscess, • Vertigo- how to ask basic history, examination. Meniere's disease symptomatology and management, BPPV, Vestibular neuronitis • X-ray of mastoid; Laws view in normal and in patients with acute or chronic Mastoiditis • Pseudocyst Pinna • Ototoxicity • Sudden hearing loss • Non organic hearing loss • Injuries to ear- traumatic, acoustic trauma and barotrauma • Presbycusis • Tinnitus • Myringotomy and grommet insertion • Surgery: Cortical and Modified Radical Mastoidectomy, Tympanoplasty/ Myringoplasty – Principles and complications. Instruments used.

2.	**NOSE AND PARANASAL SINUSES**
Theory	• Anatomy and physiology of the nose and paranasal sinuses including olfaction. Nasal cycle and nasal resistance • Viruses and bacteria causing acute and chronic rhinitis and sinusitis • Antibiotics used in acute and chronic sinusitis, nasal furunculosis • Mechanism of sinonasal allergy (basics) • Mucociliary clearance mechanism
	• Maxillectomy: indications and brief steps • Maxillofacial trauma types and management, blow out fracture • CT scan of paranasal sinuses basics • Tests for nasal allergy • Choanal Atresia • Mucocele of paranasal sinuses • Craniopharyngioma & Proptosis
	• Rhinomanometry • Balloon sinuplasty • Navigation techniques • Endoscopic skull base surgeries (hypophysectomy, orbital decompression and optic nerve decompression) • Microdebrider uses • Endoscopic DCR • Septorhinoplasty
Clinical Conditions	• Symptoms of nasal diseases; causes of nasal obstruction, and nasal discharge • Methods of examination of the nose and paranasal sinuses. Instruments used. • Diseases of the nasal septum: deviation of nasal septum and principles of Management • Types of Septal surgery- basics and instruments used • Diagnosis and management of nasal bone fracture • Epistaxis; anterior and posterior, common causes and emergency management • Foreign bodies in nose including Rhinolith. • CSF Rhinorrhoea: diagnosis and causes • Nasal allergy – Diagnosis, evaluation and management, Vasomotor rhinitis • Nasal Polyposis; types and management. • Inflammation of the nose: Furunculosis of vestibule of the nose, acute rhinitis. • Inflammatory diseases of paranasal sinuses: acute and chronic maxillary sinusitis, frontal sinusitis, Ethmoidal sinusitis and complications of sinusitis. • Atrophic rhinitis, • Types of fungal sinusitis- invasive and non-invasive; Rhino cerebral Mucormycosis clinical features, diagnosis and management (Broad outline) • Nasal Septum Perforations, Septal haematoma and Septal Abscess. • Juvenile Nasopharyngeal Angiofibroma clinical features, diagnosis and management • Granulomatous diseases of the nose, Rhinoscleroma, Rhinosporidiosis • Rhinitis Medicamentosa • X-ray of paranasal sinuses and its indications • Rigid nasal endoscopy; basic steps and indications • Endoscopic sinus surgery(FESS): indications and basic steps and complications • Outline of management of benign tumors of nose and paranasal sinuses – Inverted Papilloma & Osteoma • Outline of management of Malignant tumors of nose and paranasal sinuses – Squamous cell carcinoma. • Nasal Myiasis & Caldwell Luc surgery

3	**PHARYNX**
Theory	• Anatomy and physiology of the Oropharynx, Nasopharynx and Laryngopharynx • Commensals of the oral cavity and Oropharynx, Organisms causing acute and chronic tonsillitis. • Antibiotics used in acute and chronic tonsillitis
	• Broad outline of management of malignant tumors of Oropharynx. • Submandibular gland sialolithiasis • 1st and 2ndbranchial arch anomalies • Eagle's syndrome • Lingual thyroid • Post Cricoid malignancy • Pan- endoscopy including laryngoscopy, bronchoscopy, oesophagoscopy • Polysomnography and UVPP • Corrosive Stricture – Oesophagus. • Achalasia Cardia
	•
	• Oesophageal Diverticulum. • Drooling • Robotic surgeries, • Thyroid gland diseases • Salivary gland diseases • Functional evaluation of swallowing disorders • Parapharyngeal tumours
Clinical Conditions	• Symptoms of diseases of Nasopharynx, Oropharynx and Laryngopharynx Methods of examination – Nasopharynx Oropharynx and Laryngopharynx including Instruments used. • Diseases of the pharynx: adenoids including x rays; acute and chronic pharyngitis; Diphtheric pharyngitis; • Acute follicular tonsillitis and differential diagnosis of membranous tonsillitis: chronic tonsillitis; tonsillectomy and adenoidectomy – indication; Peritonsillar abscess. Including instruments • Dysphagia including acid ingestion emergency management. • Ludwig's angina; causes, presentation and management • Premalignant lesions of the oral cavity and differential diagnosis of white patch over tonsil, Oral Candidiasis. • Acute and Chronic Retropharyngeal abscess • Plummer Vinson's syndrome • Laryngopharyngeal reflux • Snoring and obstructive sleep apnoea: basics • Stertor • Foreign body oesophagus • Dysphagia • Tongue tie • Nasopharyngeal carcinoma • Pharyngeal pouch

4	**LARYNX**
Theory	• Anatomy and physiology of the larynx. • Organisms causing acute laryngotracheal bronchitis
	• Tuberculosis of the larynx. • Basic speech disorders including stuttering • Cricothyrotomy • Subglottic stenosis, tracheal stenosis • Percutaneous dilatation Tracheostomy • Laser • Stuttering and stammering
	• Laryngocele • Total laryngectomy; indications and steps • Post laryngectomy rehabilitation • Phonosurgery • Thyroplasty • Co- ablation, cryosurgery • Stroboscopy
Clinical Conditions	• Symptoms of diseases of the larynx • Methods of examination of the larynx. Instruments used • Hoarseness of voice • Etiology and Management of Stridor in Children and Adults. • Paralysis of Vocal cords including bilateral abductor palsy. • Laryngocele • Puberphonia and functional aphonia • Inflammatory lesions of the larynx. eg: acute laryngitis, acute Epiglottitis • Vocal cord nodules, contact ulcer and polyps and Reinke's edema • Benign tumors of larynx (including Papilloma Larynx.) • Premalignant lesions of the Larynx. • Malignant tumors of larynx: etiology, clinical presentation, classification and broad management. • FB larynx, trachea and bronchus presentation and management. • Tracheostomy: Indications, techniques and complications. Types of Tracheostomy tubes. • Gastroesophageal reflux disease • X ray neck; views and indications • Flexible laryngoscopy; basic steps and indications. • Laryngomalacia • Microlaryngoscopy and surgery and direct laryngoscopy: Indications and basic steps. Including instruments.

5	**HEAD AND NECK**
Theory	• Broad anatomy of neck nodes, levels or groups
	• Thyroglossal cyst, Sistrunk's operation • Neck dissection- basic types and indications
	• Neck trauma
Clinical Conditions	• TB of neck nodes: diagnosis and management • Secondaries in the neck- common sites of primary, diagnosis and broad management • Neck Space infections - causes and management

PRACTICALS

Includes attending out-patient department, observing the treatment protocol followed in the OPD by the consultants, Proper history taking & clinical examination of patients and case presentation to the teaching faculty. They should **maintain record book** regarding the theory, clinical, ward and OT activities.

• Use of head mirror. • Anterior Rhinoscopy. • Nasal airway patency tests. • Paranasal sinuses examination. • Use of tongue depressor and throat examination. • Neck node examination. • Use of Otoscope, Siegalisation. • Aural toileting. • Eliciting Mastoid tenderness. • Tuning Fork tests (Rinne, Weber & ABC). • Fistula Test. • Clinical examination of the Facial Nerve.
• Post – nasal Examination. • Indirect Laryngoscopy. • Cranial Nerves Examination. • Bi-digital Palpation for Sub-Mandibular Salivary gland. • Laryngeal Crepitus.
• Vestibular Function Tests (Romberg, Tandem Walking) • Eustachian Tube Tests. (Valsalva)

CLINICAL POSTINGS

Each student should present minimum 3 cases (Ear, Nose & Throat) in the clinical postings.

Long case	• Chronic suppurative otitis media mucosal disease • Chronic adenotonsillitis • Deviated nasal septum with sinusitis • Nasal polypi • Bilateral Ethmoidal polypi • Antrochoanal polyp • Atrophic rhinitis • Rhinosporidiosis • Facial palsy • Deviated nasal septum
Observation in OPD	• Foreign Body removal in Ear, nose & throat. • Diagnostic Nasal Endoscopy. • Videolaryngoscopy. • Anterior nasal packing. • Cautery for Epistaxis. • Caloric Tests. • Positional Tests and Epley's manoeuvre. • Pure tone Audiogram and Tympanometry and Oto Acoustic Emissions
Observation in the Ward	• Ward rounds and case discussion. • Tracheostomy care. • Mastoid dressing. • Post- laryngectomy rehabilitation. • 5Nasal Douching.
Observation in the OT	• Observe the following surgeries: **Must Observe:** • Adenoidectomy and tonsillectomy. • Septal Correction. (SMR & Septoplasty.) • Myringotomy and Grommet insertion. • Myringoplasty. • Cortical Mastoidectomy and Tympanoplasty. • Endoscopic Nasal Polypectomy. • Functional Endoscopic Sinus Surgery. • Tongue tie release. • Tracheostomy. **Desirable to observe:** • Modified Radical Mastoidectomy and Tympanoplasty. • Stapedectomy. • Micro-laryngeal Surgeries. • Pre-auricular sinus excision. • Thyroglossal cyst excision – Sistrunk Procedure. • Young's operation. **Nice to observe:** • Thyroidectomy. • Total Laryngectomy. • Total Maxillectomy.

Suggested Mini CEX Encounters

- Examination of Pinna, External auditory canal and tympanic membrane with Headlight
- Examination of tympanic membrane with otoscope
- Performing Epley's manoeuvre for BPPV
- Hearing assessment with Tuning fork tests
- Examination for peripheral nystagmus
- Dix-Hallpike manoeuvre for diagnosis of vertigo
- Examination of external nose, vestibule
- Anterior Rhinoscopy
- Posterior Rhinoscopy
- Pack removal Ear/ Nose
- Examination of oral cavity and oropharynx
- Examination of taste
- Examination of soft palate, gag reflex
- Examination of neck nodes, thyroid gland
- Examination of salivary glands
- Biopsy from oral cavity
- Examination of Paranasal sinuses
- Assessment of olfaction

OPHTHALMOLOGY

1.	**FUNDAMENTALS AND PRINCIPLES OF OPHTHALMOLOGY**
Theory	• Describe normal anatomy of eye, pupillary and light pathway • Physiology – Aqueous humour formation, tear film, fields • Pharmacology – Ophthalmic preparations, modes of administration, Antibiotics, antivirals, antifungals, antiglaucoma drugs, mydriatics and cylcoplegics, ocular toxicity of systemic, ocular medication. • Causes of painless, progressive diminution of vision • Painful and sudden visual loss • Obtain an accurate and complete ocular history • Measure and record distance and near visual acuity in an adult • Assess pupil-size, shape, regularity, reactivity • Assess anterior chamber depth with penlight • Evaluate ocular motility • Determine if proptosis is present • Use of direct ophthalmoscopy for assessment of red reflex, the optic nerve and posterior fundus. • Differentiate conjunctival and ciliary congestion • Assess corneal clarity and anterior chamber depth with penlight • Perform and evaluate visual fields by confrontation • General principles of intraocular surgery

2	**CONJUNCTIVA, CORNEA AND SCLERA**
Theory	• Anterior segment anatomy-conjunctiva, cornea, sclera • Symptoms and signs of common causes of red eye conjunctivitis-acute, allergic trachoma • Subconjunctival haemorrhage, Pinguecula, Pterygium, Symblepharon, Xerosis/Bitot spots • Episcleritis, scleritis, staphyloma-anterior, equatorial, posterior • Corneal scraping, Schirmer's, TBUT • Bacterial and fungal corneal ulcer-features and differences and complications • Corneal opacities • Xerophthalmia • Vitamin A Deficiency and keratomalacia, Exposure keratitis, Neuroparalytic keratitis, Arcus senilis • Penetrating keratoplasty • Lamellar keratoplasty
	• Dry eye, membranous conjunctivitis, Inclusion Conjunctivitis • Deep/Interstitial keratitis, Degenerations and dystrophies, • Overview of Keratorefractive surgery. • Chemical injury • Hyphema

3	**UVEA**
Theory	• Anterior and Posterior uveitis • Granulomatous and nongranulomatous • Causes of uveitis • Panophthalmitis, Endophthalmitis, Sympathetic Ophthalmitis, VKH syndrome
	• Herpetic uveitis • Systemic associations of uveitis, Coloboma iris

4	**LENS AND CATARACT**
Theory	• Anatomy of lens • Symptoms and signs of cataract • Principles of cataract surgery • Correction of aphakia with intraocular lenses, contact lenses and aphakic glasses • Postoperative complications-endophthalmitis • Secondary cataract and cataract in young-causes and management • Intraocular lenses- posterior and anterior chamber, sulcus and scleral fixation • Posterior capsule opacification-types and management
	• Lens abnormalities in systemic diseases like Marfan's syndrome

5	**NEURO-OPHTHALMOLOGY**
Theory	• Relative Afferent Pupillary defect • Causes of sudden visual loss • Papilledema-causes and management • Optic neuritis-types and management • Optic atrophy • Visual field defect-scotomas, homonymous and bitemporal hemianopias
	• Myasthenia Gravis • Cranial nerve palsies-3,4,6 • Ischemic optic neuropathy
	• Nystagmus • Intranuclear Ophthalmoplegia • Amaurosis Fugax

6	**VITREO-RETINA**
Theory	• Vitreous-anatomy, • Vitreous hemorrhage-causes, Synchysis scintillans, Asteroid Hyalosis • Anatomy and function of retina • Macula-definition and function • Symptoms of vitreoretinal disorders, • Examination of eye with direct ophthalmoscope-red reflex, optic disc, retinal arterioles and venules, posterior retina • Fundus features of systemic disorders-diabetic retinopathy, hypertensive retinopathy, Pregnancy induced Hypertension, Hematological disorders, myopia • Fundus features of ocular disorders-central retinal vein and artery occlusion • Retinal detachment-types, features, and management • Leucocoria and retinoblastoma • Retinitis pigmentosa • Laser Photocoagulation
	• Age related macular degeneration • HIV and ocular manifestations • Retinopathy of Prematurity

7	**GLAUCOMA**
Theory	• Anatomy of anterior chamber angle, aqueous humour circulation • Definition of glaucoma • Signs of optic nerve damage-cupping, neuroretinal rim • History for risk factors of glaucoma • Symptoms and signs of Primary open angle and angle closure glaucoma • Methods of Intraocular pressure measurement-digital , applanation • Field changes in glaucoma • Perimetry-automated and other types • Management of acute angle closure attack • Pharmacological treatment of glaucoma-target pressure • Laser- iridotomy, trabeculoplasty-indications • Surgical treatment-trabeculectomy • Steroid induced glaucoma
	• Provocative tests • Secondary glaucomas • Normal tension glaucoma • Retinal nerve fibre analysis-OCT • Nonpenetrating surgeries • Glaucoma shunt procedures
	• Laser iridoplasty • Microincision glaucoma surgeries
8	**PAEDIATRIC OPHTHALMOLOGY AND STRABISMUS**
Theory	• Anatomy of extraocular muscles • Normal ocular alignment, Hirschberg's test, cover test • Examination in children • Congenital cataract-morphology, causes and treatment • Nutritional disorders and eye
	• Amblyopia-diagnosis and management • Neurofibromatosis
	• Binocular vision and orthoptics
9	**LIDS AND LACRIMAL SYSTEM**
Theory	• Lids and lacrimal system- anatomy • Tear production and drainage • Blepharitis, Hordeolum, Chalazion, entropion, ectropion, lagophthalmos, Bell's palsy, Trichiasis • Syringing, Jone's test, Dacryocystitis-acute and chronic, congenital • DCT,DCR • Lid tumors- Premalignant lesions, BCC, SCC, Sebaceous gland carcinoma
	• Ptosis and Management
10	**OPTICS AND REFRACTION**
Theory	• Elementary Optics: Sturms' conoid, Donders eye • Dark room procedures, Accommodation • Refractive errors-myopia, hypermetropia, astigmatism, presbyopia, aphakia/Pseudophakia, anisometropia. • Spectacle and contact lens correction • Direct and Indirect ophthalmoscopy and use of contact and noncontact lenses
	• Overview of refractive surgeries-risks and benefits • Principles of contact lens wear
	• Principles of low vision rehabilitation

11	**OPHTHALMIC EMERGENCIES**
Theory	• Injuries-Traumatic-blunt and penetrating, Thermal and Chemical burns-first aid • Open globe and closed globe injuries • Nontraumatic-Papilledema, Anterior ischemic Optic neuropathy, Optic neuritis • Minor OT procedures
	• Traumatic optic neuropathy • Siderosis bulbi, Chalcosis Medicolegal aspects

12	**ORBIT & INTRAOCULAR TUMORS**
Theory	• Orbital structure and abnormalities • Preseptal and Orbital cellulitis, Cavernous sinus thrombosis • Common causes of proptosis • Enucleation, Evisceration, Exenteration-Indications and procedure • Retinoblastoma and Malignant melanoma • Rhino-orbital mucor mycosis
	• Thyroid Ophthalmopathy • Optic nerve glioma and meningioma • Capillary and Cavernous Hemangioma, • Lymphangioma
	• Lymphoma • Lacrimal gland tumors

13	**COMMUNITY OPHTHALMOLOGY**
Theory	• Blindness-definition, types, causes, prevalence, prevention, rehabilitation • National programme for control of blindness • Comprehensive eye care in rural set up • Eye donation and banking
	• School eye screening Vision 2020, • Eye camps

14	**MISCELLANEOUS**
Theory	• Surgical instruments and visit to main OT • Symptomatic disturbances of vision • Overview of Recent Advances in Ophthalmology
	• Other Lasers in Ophthalmology

COMMUNITY MEDICINE (PREVENTIVE AND SOCIAL MEDICINE)

1	**NUTRITION**
Theory	• Macronutrient& Micronutrients, trace elements • Balanced diet, dietary goals and RDA • Nutritional assessment • Nutritional deficiency, public health problem • Food adulteration, fortification and standards
Theory SDL	• Public health acts related to food quality
Practical	• Principles of Nutrition& Diet planning • Nutrition & Diet planning- case scenarios • Nutrition spotters demonstration

2	**SOCIOLOGY**
Theory	• Introduction to Medical Sociology • Behaviour, Culture, Role of family in health and disease • Social security, psychology and social organizations
Theory SDL	• Student seminar based on case scenarios – (Role of Behaviour, Role of Culture, Social problems, Social class, Role of family in health and disease) • Group Discussions - Social security , Social Organizations, Intelligence, Psychology , Motivation, Art of Interviewing
Practical	• Social Problems Related to Geriatric Care

3	**REPRODUCTIVE AND CHILD HEALTH**
Theory	• Introduction to RCH • Maternal health • New Born Care • Child Health (Growth & Development ,ICDS) • Indicators of MCH Care • Programmes (School Health Programme)
Theory SDL	• Juvenile Delinquency • Child abuse, Street Children , Refugee and Displaced Children, Child Labour, Child Trafficking • Maternal and child tracking system • Every New Born Action Plan • India New Born Action Plan • Mission Indra dhanush • Elimination of maternal and neonatal tetanus • Global strategic measles and rubella Plan
Practical	• Immunisation • Immunisation spotters • Family welfare measures • Family welfare spotters • Integrated management of neonatal and childhood illness • Exercises on IMNCI • Adolescent health • Spotters on IMNCI • Growth monitoring

4	**BIOSTATISTICS**
Theory	• Introduction to biostatistics, Types of data • Measures of central tendency and dispersion, concept of statistical significance
Theory SDL	• Sources of health information • Sampling- revision • Probability
Practical	• Measures of central tendency/Location • Measures of dispersion(Range, Standard deviation, Standard error, Co-efficient of variation)

5	**DEMOGRAPHY**
Theory	• Introduction to demography and vital statistics, uses and demographic transition • Fertility and Mortality indicators
Theory SDL	• Family planning measures-Revision • Population stabilization
Practical	• Fertility indicators, dependency ratios • Mortality indicators

6	**EPIDEMIOLOGY**
Theory	• Introduction to Epidemiology & Study Designs • Basic Measurements in Epidemiology • Descriptive Studies • Case control Studies • Cohort Studies • Interventional Studies • Bias and confounding • Association& Causation of Disease • Screening for Diseases- Types of screening, definitions
Theory SDL	• Measurements in health and disease • Standardization • International death certificate
Practical	• Exercises on Morbidity indicators • Exercises on case control study • Exercises on Cohort study • Investigation of outbreak • Exercise on Outbreak investigation • Exercises on Screening –Sensitivity, Positive Predictive value, Negative Predictive value

7	**ENVIRONMENT**
Theory	• Environment
Theory SDL	• Water – Sources, Water related diseases • Air Pollution – Prevention and control • Noise Pollution –Effects, Prevention and control • Radiation
Practical Block posting	• Sewage treatment methods - Visit to Sewage treatment plant • Water quality standards - Visit to Water works, Muthirapalayam • Water purification methods - Horrock's apparatus and Chloroscope demonstration • Housing – Housing assessment during Family health advisory posting • Light and ventilation – Housing assessment during Family health advisory posting • Medical Entomology

8	**COMUNICABLE DISEASES**
Theory	• Infectious disease epidemiology, Dynamics of disease control • Principles of Disease prevention and control • Acute Respiratory Illness • Tuberculosis • Malaria • Dengue, Filariasis & JE • Acute Diarrheal Diseases • Poliomyelitis • Rabies • HIV/AIDS
Theory SDL	• Control of Infectious diseases - Achievements in public health • Small Pox, Chicken Pox, Measles • Diphtheria, Pertussis,Tetanus • Emerging and re-emerging diseases- Influenza, ebola, zika • Plague, leptospirosis • Leishmaniasis • Syndromic approach for STD's • Typhoid, cholera • Rickettsial infections • RF/ RHD
Practical	• Exercises on Communicable diseases control –Malaria • Exercises on Communicable diseases control – Filariasis, others • Communicable diseases control –TB

9	**NCD EPIDEMIOLOGY**
Theory	• Introduction to NCD and Mental Health • Risk factors for NCD • Diabetes Mellitus • Cardio-vascular diseases: HTN, IHD, Stroke • Cancers • Blindness • Road Traffic Injuries • Health Promotion 2, 3, 4, 5, 6, 7, 8: SCL. 1,9,10 : Lecture-Discussion
Practical (Family Health Advisory programme)	• Practical session on "Prevention and Control of Injuries" – 2sessions • WHO-ISH carting and risk calculation as a part of FHAP • IDRS calculation as a part of FHAP • Behavioural change communication as a part of FHAP • GHQ assessment as a part of FHAP • Assessment of ADL as a part of FHAP • Health Communication with the elderly as a part of FHAP • Case scenario discussion – 1, 2- 7: Skill based learning and evaluation

4.TIME TABLE

TOTAL TEACHING HOURS

S. No	Subject Discipline	Total Teaching Hours (Theory + Practical + Clinical Postings)
1	Oto -Rhino Laryngology	214
2	Ophthalmology	280
3	Community Medicine	484

WEEKLY TIMETABLES FOR MBBS PHASE III – Part I (Clinical Subjects)

VI SEMESTER (REGULAR) DECEMBER 2018 TO SUMMER VACATION 2019

DAYS	8.00 A.M. to 9.00 AM	9.00 A.M. to 10.00 AM	10.00 AM to 1.00 PM	2.00 P.M. to 4.30 PM
MONDAY	Test / ENT	Skin	CLINICS	Modular Teaching
TUESDAY	Surgery	Community Medicine		Com. Med. Practical / Field Work
WEDNESDAY	Obst. & Gyn.	Medicine		Modular Teaching
THURSDAY	Ophthalmology	Psychiatry		Modular Teaching
FRIDAY	Ophthalmology	Ortho		Modular Teaching
SATURDAY	Obst. & Gyn.	Pulmonary Medicine		–

5.**EXAMINATION REGULATIONS**

III - PROFESSIONAL YEAR - Part 1- (Clinical Subjects)			
Name of the Subject	**Evaluation parameter**	**Maximum Marks**	**Passing minimum**
Oto-Rhino Laryngology (ENT)	Written (1 Paper)	80	40
	Written including oral	100	50
	Practical	50	25
	Internal Assessment Theory	20	10
	Internal Assessment Practical	30	15
	Overall (Total)	**200**	**100**
Ophthalmology	Written (1 Paper)	80	40
	Written including oral	100	50
	Practical	50	25
	Internal Assessment Theory	20	10
	Internal Assessment Practical	30	15
	Overall (Total)	**200**	**100**
Community Medicine	Written (2 Papers)	160	80
	Written including oral	180	90
	Practical	100	50
	Internal Assessment Theory	40	20
	Internal Assessment Practical	30	15
	Overall (Total)	**350**	**175**

Eligibility to appear for examination

Attendance = 75 %

Internal Assessment Marks = 50%

Marks qualifying for pass

50% in Theory

50% in Theory including Viva-Voce

50% in Practical

50% in Internal Assessment Theory

50% in Internal Assessment Practical

50% in Total Aggregate

If the candidate fails in either theory or practical examination, he/she has to appear again for both theory and practical examination of the concerned subject.

6. LEARNING RESOURCE MATERIALS

OTO-RHINO-LARYNGOLOGY

RECOMMENDED TEXTBOOKS (Latest Edition)

1. Diseases of Ear, Nose and Throat- P L Dhingra
2. A Short Practice of Otorhinolaryngology - Prof. KK Ramalingam
3. Logan Turner's Diseases of The Nose,Throat and Ear Head & Neck Surgery
4. Diseases of Ear, Nose and Throat - Mohan Bansal
5. Textbook of Ear, Nose & Throat–SS Tuli
6. Textbook of Ear, Nose, Throat and Head and Neck Surgery: Clinical and Practical - Hazarika

REFERENCE BOOKS

1. Scott-Brown's Otorhinolaryngology and Head and Neck Surgery

OPHTHALMOLOGY

RECOMMENDED TEXTBOOKS

1. Parson’s diseases of the Eye
2. Kanski's Clinical Ophthalmology
3. Clinical Anatomy Of The Eye – Richard S Snell

REFERENCE BOOKS

1. Signs in Ophthalmology: Causes and Differential Diagnosis - Jack. J.Kanski
2. Ophthalmology - Yanoff , Duker

COMMUNITY MEDICINE

RECOMMENDED TEXTBOOKS (Latest edition)

1. Park's Text Book for preventive and Social Medicine, Edited by K. Park

REFERENCE BOOKS

1. Oxford text book of Public Health (3 volumes), Edited by Walter W.Holland, Roger Detels & George Knox
2. Maxey-Rosenau-Last Public Health and Preventive Medicine (Public Health and Preventive Medicine by Robert B. Wallace
3. Preventive Medicine for the Doctor in his Community: An epidemiological Approach. Edited by Hugh Rodman Level and E. Gurney Clark
4. Mahajan's Methods in Biostatistics for Medical Students and Research Workers edited and revised by Bratati Banerjee
5. Bradford Hill's Principles of medical Statistics, by Bradford Hill
6. Short Text book of Preventive & Social Medicine, by G.N.Prabhakara
7. Research Methods in Community Medicine: Surveys, Epidemiological Research, Programme Evaluation, Clinical Trials, by Joseph Abramson
8. Modern Nutrition in Health and Disease, by Maurice E. Shils
9. Text book for the Health Worker, by A.M.Chalkey
10. Community Medicine-Practical manual, by A A Kameswara Rao

REPRODUCTIVE CHILD HEALTH

1. Preventive Medicine in Obstetrics, Paediatrics and Geriatrics. In:Park's Textbook of Preventive and Social Medicine.
2. Immunization Handbook for medical officers, 2017. Available from https://mohfw.gov.in/basicpage/immunization-handbook-medical-officers2017
3. Operational guidelines Mission Indradhanush, 2015. Available from https://www. upnrhm.gov.in/site.../pdf
4. India Newborn Action Plan - New Born Baby. Available from https://www.newbornwhocc.org/INAP_Final.pdf
5. Every Newborn Action Plan - World Health Organization. Available from https://www.who.int/pmnch/about/governance/partnersforum/enap_full.pdf

SOCIOLOGY

1. Medicine and Social Sciences. In: Park's Textbook of Preventive and Social Medicine.

OCCUPATIONAL HEALTH

1. International Labour Organization - ILO. Available from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_615594.pdf

GENETICS AND HEALTH

1. The Human Genome Project available from http://ghr.nlm.nih.gov/primer/hgp.pdf

Annexure- I – MODEL QUESTION PAPERS

OTO-RHINO-LARYNGOLOGY

Time: Three Hours **Maximum Marks: 80**

Each Section to be answered in separate answer book
Illustrate with suitable diagrams wherever necessary

SECTION A (Marks: 40)

(Nose and Ear)

1. Enumerate the various causes of unilateral nasal obstruction. Describe the etiology, clinical features and management of acute sinusitis. (4+6=10)

2. Write short notes on: (5x6=30)
   a) Principal of Caldwell Luc surgery.
   b) Glue Ear.
   c) Atrophic Rhinitis.
   d) Sigmoid sinus Thrombosis.
   e) Pure tone audiometry.

SECTION B (Marks: 40)

(Larynx and Pharynx)

3. Describe epidemiology, clinical features and management of a case of Carcinoma Nasopharynx. (3+4+3=10)

4. Write short notes on: (5x6=30)
   a) Laryngomalacia.
   b) Para-pharyngeal Abscess.
   c) Steps of tonsillectomy.
   d) Complications of Esophagoscopy.
   e) Differential diagnosis of White patch on the tonsil.

-oo0oo-

OPHTHALMOLOGY

Time: Three Hours **Maximum Marks: 80**

Each Section to be answered in separate answer book
Illustrate with suitable diagrams wherever necessary

SECTION A (Marks: 40)

Anterior segment diseases

1. A 60 year old lady presented with history of injury with paddy grain 1 week back and pain and redness in left eye since 3 days. What is the most probable diagnosis? Discuss the clinical features. How do you manage the case? (2+5+3=10)

2. Write short notes on: (5x6=30)
   a) Ophthalmia neonatorum.
   b) Ectopia lentis.
   c) Secondary glaucoma.
   d) Iris Nodules.
   e) Pterygium.

SECTION B (Marks: 40)

Posterior segment and Adnexal diseases

3. Enumerate the causes of leucocoria in a two year old child. Describe the clinical features and management of Retinoblastoma. (4+2+4=10)

4. Write short notes on: (5x6=30)
   a) Proliferative Diabetic Retinopathy.
   b) Lagophthalmos.
   c) Vision 2020.
   d) Papillitis.
   e) Amblyopia.

-oo0oo-

COMMUNITY MEDICINE

Paper – 1

(General Epidemiology, Biostatistics, Sociology, Nutrition, Demography, Environmental Health)

Time: Three Hours **Maximum Marks: 80**

Each Section to be answered in separate answer book
Illustrate with suitable diagrams wherever necessary

SECTION A (Marks: 40)

1. What are the sources of Bio-medical waste? Describe in detail the revised Bio-medical waste management, 2016. (10)

2. Write short notes on: (5x6=30)
   a) Control measures for noise pollution.
   b) Reasons for declining sex ratio in India.
   c) Degrees of freedom.
   d) Primordial prevention.
   e) Dependency Ratio.

SECTION B (Marks: 40)

3. In a study to find the association of Low Birth Weight (LBW) with neurodevelopmental delays, 100 LBW and 100 normal birth weight (NBW) babies were followed up for a year. Twenty of the LBW and five of the NBW babies had delayed developmental milestones at age one. (5+5=10)
   a) Calculate the appropriate measure of association.
   b) List the criteria for judging causality.

4. Write short notes on: (5x6=30)
   a) Assessment of quality of water in an area.
   b) Community Diagnosis.
   c) Uses of Food Pyramid.
   d) Measures of mortality.
   e) Role of climate change on health.

-oo0oo-

COMMUNITY MEDICINE

Paper – 2

(Epidemiology of Communicable and Non-communicable diseases, Occupational Health, Maternal and Child Health, Family Welfare, Public Health Administration, Health Education)

Time: Three Hours **Maximum Marks: 80**

Each Section to be answered in separate answer book
Illustrate with suitable diagrams wherever necessary

SECTION A (Marks: 40)

1. A 35-year old female with Body Mass Index of 30kg/m^2 and family history of breast cancer comes to the out patient department with complains of easy fatigability. Name with justification, the conditions you will screen her for. (10)

2. Write short notes on: (5x6=30)
   a) Health hazards of sanitary workers.
   b) Child health screening in Rashtriya Bal Swasthya Karyakram.
   c) Mission Indradhanush.
   d) Couple protection rate.
   e) Uses of Indian Public Health Standard.

SECTION B (Marks: 40)

3. Define Maternal Mortality Ratio. Write in detail the preventive measures taken to reduce Maternal deaths under the relevant National Programmes. (2+8=10)

4. Write short notes on: (5x6=30)
   a) Algorithm for diagnosis of Tuberculosis in India.
   b) Triage in disaster response.
   c) Role of mass media in health promotion.
   d) Cardiovascular disease risk stratification methods.
   e) Post exposure prophylaxis for HIV.

-oo0oo-