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1. Goal and Objectives

1.1. Goal

The goal of M.D. course in Pediatrics is to produce a competent pediatrician who:

- a. recognizes the health needs of infants, children and adolescents and carries out professional obligations in keeping with principles of National Health Policy and professional ethics;
- b. has acquired the competencies pertaining to pediatrics that are required to be practiced in the community and at all levels of health care system;
- c. has acquired skills in effectively communicating with the child, family and the community;
- d. is aware of the contemporary advances and developments in medical sciences as related to child health;
- e. is oriented to principles of research methodology; and
- f. has acquired skills in educating medical and paramedical professionals.

1.2. Objectives

At the end of the MD course in Pediatrics, the student should be able to:

- a. recognize the key importance of child health in the context of the health priorities of the country;
- b. practice the specialty of Pediatrics in keeping with the principles of professional ethics;
- c. identify social, economic, environmental, biological and emotional determinants of child and adolescent health, rehabilitative, preventive and promotive measures to provide holistic care to children;
- d. recognize the importance of growth and development as the foundation of Pediatrics; and help each child realize her/his optimal potential in this regard;
- e. take detailed history, perform full physical examination including neuro-development and behavioral assessment and anthropometric measurements of the child and make clinical diagnosis;
- f. perform relevant investigative and therapeutic procedures for the pediatric patient;
- g. interpret important imaging and laboratory results;
- h. diagnose illness in children based on the analysis of history, physical examination and investigative work up;
- i. plan and deliver comprehensive treatment for illness in children using principles of rational drug therapy;
- j. plan and advise measures for the prevention of childhood disease and disability;
- k. plan rehabilitation of children suffering from chronic illness and handicap, and those with special needs;
- l. manage childhood emergencies efficiently;

- m. provide comprehensive care to normal, 'at risk' and sick neonates;
- n. recognize the emotional and behavioral characteristics of children, and keep these fundamental attributes in focus while dealing with them;
- o. demonstrate empathy and humane approach towards patients and their families and respect their sensibilities;
- p. demonstrate communication skills of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families and communities;
- q. develop skills as a self-directed learner, recognize continuing educational needs; use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based pediatrics;
- r. demonstrate competence in basic concepts of research methodology and epidemiology;
- s. facilitate learning of medical/nursing students, practicing physicians, para-medical health workers and other providers as a teacher-trainer;
- t. play the assigned role in the implementation of national health programs, effectively and responsibly;
- u. organize and supervise the desired managerial and leadership skills;
- v. function as a productive member of a team engaged in health care, research, and education.

2. Curriculum

General guidelines: during the training period, effort must always be made that adequate time is spent in discussing child health problems of public health importance in the country or a particular region.

2.1. Theory

a. Growth and development:

- Principles of growth and development
- Normal growth and development at different ages
- Puberty and its regulation
- Failure to thrive and short stature
- Developmental milestones
- Development delay and intellectual disability
- Sleep medicine
- Behavioral disorders
- Attention deficit hyperactivity disorders
- Autism spectrum disorders
- Specific learning disabilities including Dyslexia

b. Neonatology:

- Placental physiology, fetal and neonatal circulation
- Perinatal care
- Care in the labor room and resuscitation
- Normal newborn
- High risk infant
- Low birth weight
- Prematurity
- Newborn feeding
- Common transient phenomena
- Respiratory distress syndrome
- Meconium aspiration syndrome
- Bronchopulmonary dysplasia
- Apnea
- Birth asphyxia and hypoxic-ischemic encephalopathy
- Neonatal jaundice
- Congenital and perinatal infections
- Necrotizing enterocolitis
- Anemia and bleeding disorders
- Intracranial hemorrhage
- Neonatal seizures

Neonatal hypoglycemia
Thermoregulation and its disorders
Congenital malformations

c. Nutrition:

Age-wise normal requirements of various nutrients
Maternal nutritional disorders and fetal outcomes
Breast feeding
Complimentary feeding
Infant and young child feeding
Nutrition for the low birth weight
Adolescent nutrition
Vitamin deficiencies and excess (A, B complex, C, D, E, K)
Mineral deficiencies
Protein energy malnutrition (SAM, MAM)
Overweight and obesity
Nutritional management of systemic illness (e.g., celiac disease, hepatobiliary disorders, nephrotic syndrome)
Parenteral and enteral nutrition in neonates and children

d. Cardiovascular system:

Congenital heart diseases (cyanotic and acyanotic)
Rheumatic fever and rheumatic heart disease
Infective endocarditis
Arrhythmias
Diseases of myocardium (cardiomyopathy, myocarditis)
Diseases of pericardium
Congestive cardiac failure
Systemic hypertension
Hyperlipidemia in children

e. Respiratory system:

Foreign body in upper and lower airway
Congenital anomalies of lower respiratory tract
Pneumonia and its complications
Persistent and recurrent pneumonia
Gastroesophageal reflux and aspiration pneumonia
Bronchiolitis
Bronchial asthma
Bronchitis
Bronchiectasis
Suppurative lung disease
Pleural effusion

- Emphysema and hyper-inflation
- Atelectasis
- Pulmonary and mediastinal airleaks
- Pulmonary edema
- Pulmonary embolism
- Lung cysts
- Mediastinal mass
- f. Gastrointestinal and hepatobiliary system:
 - Diseases of mouth, oral cavity and tongue
 - Disorders of deglutition and esophagus
 - Peptic ulcer disease
 - Foreign body
 - Congenital pyloric stenosis
 - Intestinal obstruction
 - Acute and chronic gastroenteritis
 - Malabsorption syndrome
 - Celiac disease
 - Inflammatory bowel disease
 - Irritable bowel syndrome
 - Pancreatitis
 - Acute appendicitis
 - Hirschsprung's disease
 - Surgical conditions of anus and rectum
 - Viral Hepatitis
 - Liver abscess
 - Autoimmune hepatitis
 - Acute liver failure
 - Chronic liver disease
 - Wilson's disease
 - Cirrhosis and portal hypertension
 - Budd-Chiari syndrome
 - Metabolic diseases of liver
- g. Renal and genitourinary system:
 - Acute and chronic glomerulonephritis
 - Nephrotic syndrome
 - Hemolytic uremic syndrome
 - Urinary tract infection
 - VUR and renal scarring
 - Renal involvement in systemic diseases
 - Renal tubular disorders

Congenital and hereditary renal disorders

Acute kidney injury

Chronic kidney disease

Renal and bladder stones

Hydroureteronephrosis

Posterior urethral valves

Enuresis and voiding dysfunction

Neuropathic bladder

Undescended testis

Wilm's tumor

h. Central and peripheral nervous system:

Febrile seizures

Epilepsy and epileptic syndromes of childhood

Status epilepticus

Non-seizure paroxysmal events

Headache and migraine

Meningitis - bacterial, viral, tubercular

Brain abscess

Acute encephalitis and febrile encephalopathies

Neurocysticercosis and other neuroinfestations

HIV encephalopathy

Demyelinating disorders

Autoimmune encephalitis

Acute flaccid paralysis and AFP surveillance

Guillain-barre syndrome

Stroke in childhood

Cerebral palsy

Ataxia

Movement disorders of childhood

Neurometabolic disorders

Neurodegenerative disorders

Neuromuscular disorders and muscular dystrophies

Hereditary neuropathies

CNS Malformations

Neurocutaneous syndromes

CNS tumors

i. Hematology & Oncology:

Deficiency anemias

Hemolytic anemias

Hemoglobinopathies

- Aplastic anemia
- Pancytopenia
- Bleeding disorders
- Thrombocytopenia
- Thrombosis
- Blood component therapy
- Bone marrow transplant and hematopoietic stem cell transplant
- Lymphadenopathy
- Acute and chronic leukemia
- Myelodysplastic syndrome
- Hodgkin and non-Hodgkin's lymphoma
- Brain tumors
- Neuroblastoma
- Wilms tumor
- Retinoblastoma
- Histiocytic syndromes
- Oncological emergencies

j. Endocrinology:

- Hypopituitarism and hyperpituitarism
- Diabetes insipidus
- Pubertal disorders
- Hypothyroidism and hyperthyroidism
- Adrenocortical insufficiency
- Cushing's syndrome
- Congenital adrenal hyperplasia and related disorders
- Diabetes mellitus
- Gonadal dysfunction
- Disorders of sexual development

k. Infections:

- Fever: in neonates, infants and children
- Fever without focus and pyrexia of unknown origin
- Fever with rash
- Bacterial infections
- Viral infections
- Fungal infections
- Parasitic infections
- Tuberculosis
- Nosocomial infections
- Infection prevention and control practices
- Antimicrobial resistance and antimicrobial stewardship

Outbreak investigation in community and hospital
One Health approach

l. Emergency and critical care:

Approach to a sick child
Pediatric triage
Basic life support
Pediatric advanced life support
Cardio-respiratory failure and arrest
Respiratory distress and failure
Compensated and hypotensive shock
Non-traumatic coma
Status epilepticus
Pediatric trauma
Poisonings and envenomation
Drowning and submersion injury
Burns

m. Immunology and Rheumatology:

Arthritis (acute and chronic)
Vasculitis syndromes
Systemic lupus erythematosus
Kawasaki disease
Henoch-Schonlein purpura
T and B cell disorders
Primary immunodeficiency disorders

n. Ear, Nose, Throat:

Acute and chronic otitis media
Conductive/sensorineural hearing loss
Acute and chronic rhinosinusitis
Acute/chronic adenotonsillitis
Foreign body
Congenital and acquired disorders of ear, nose, throat
Obstructive sleep apnea
Subglottic stenosis (acute and chronic)

o. Pediatric dermatology:

Exanthematous illnesses
Infections and infestations
Urticaria and atopic dermatitis
Adverse cutaneous drug reactions
Eczema and ichthyosis
Vesico-bullous disorders

- Disorders of pigmentation
- Alopecia
- p. Eye problems:
 - Refraction and accommodation
 - Partial/total loss of vision
 - Night blindness
 - Strabismus
 - Conjunctival and corneal disorders
 - Retinopathy of prematurity
 - Optic atrophy
 - Papilledema
 - Cataract
 - Chorioretinitis
- q. Behavioral disorders:
 - Rumination
 - Pica
 - Enuresis
 - Encopresis
 - Sleep disorders
 - Habit disorders
 - Breath holding spells
 - Anxiety disorders
 - Mood disorders
 - Temper tantrums
 - Childhood psychosis
 - Motor disorders
- r. Community and social pediatrics:
 - National health programs related to child health
 - Child abuse and neglect
 - Child labor
 - Adoption
 - Juvenile delinquency
 - Disability and rehabilitation
 - Rights of the child
 - National policy of child health and population
 - School health programs
 - Child support services
- s. Genetics:
 - Principles of inheritance
 - Genetic approach in pediatric medicine

- Chromosomal disorders
- Single gene disorders
- Multifactorial/polygenic disorders
- Genetic diagnosis
- Prenatal diagnosis
- Genomics
- t. Orthopedics:
 - Major congenital orthopedic deformities
 - Developmental dysplasia of hip
 - Osteomyelitis
 - Septic arthritis
 - Limb length discrepancy
 - Skeletal dysplasia
 - Common bone tumors
- u. Fluid and electrolyte disorders:
 - Composition of body fluids
 - Regulation of osmolality and volume
 - Sodium and its disorders
 - Potassium and its disorders
 - Calcium and its disorders
 - Magnesium and its disorders
 - Phosphorus and its disorders
 - Acid-base balance
 - Maintenance and replacement therapy
 - Deficit therapy
- v. Drug therapy:
 - Principles of drug therapy
 - Pharmacokinetics-pharmacodynamics (PK/PD) principles
 - Pediatric pain management
- w. Metabolic disorders:
 - Disorders of carbohydrate metabolism
 - Disorders of amino acid metabolism
 - Disorders of lipid metabolism
 - Disorders of purine and pyrimidine metabolism
 - Mitochondrial diseases
 - Porphyrias
 - Hypoglycemia
- x. Atopy and Allergic disorders
 - Anaphylaxis
 - Serum sickness

Allergic rhinitis
Asthma
Urticaria and angioedema

y. Basic Sciences

Embryogenesis of different organ systems
Applied anatomy of different organs
Physiology of various organ systems
Carbohydrate, protein and lipid metabolism
Hematopoiesis and hemostasis
Bilirubin metabolism
Molecular biology
Principles of basic immunology
Teaching learning methods
Biostatistics and research methodology
Managerial skills

2.2. Approach to important clinical problems

a. Growth and development:

Failure to thrive and short stature
Precocious and delayed puberty
Developmental delay and intellectual disability
Behavioral disorders
Learning disabilities
Hyperactivity and attention deficit

b. Neonatology:

Normal newborn
Low birth weight newborn
Sick newborn

c. Nutrition:

Breastfeeding and lactation management
Complementary feeding
Protein energy malnutrition
Micronutrient deficiencies

d. Cardiovascular system:

Murmurs
Cyanosis
Congestive cardiac failure
Systemic hypertension
Arrhythmia
Shock

- Syncope and Dizziness
- Chest pain
- e. Gastrointestinal and hepatobiliary system:
 - Acute diarrhea
 - Persistent and chronic diarrhea
 - Abdominal pain and distension
 - Ascites
 - Vomiting and regurgitation
 - Constipation
 - Gastrointestinal bleeding
 - Jaundice
 - Hepatosplenomegaly
 - Hepatic failure and encephalopathy
 - Abdominal masses
- f. Respiratory system:
 - Sore throat
 - Cough/chronic cough
 - Noisy breathing
 - Wheezy child
 - Respiratory distress
 - Hemoptysis
 - Apparent life-threatening event/ Brief resolved unexplained event
- g. Infections:
 - Acute onset pyrexia
 - Fever with rash
 - Fever without focus
 - Pyrexia of unknown origin
 - Recurrent infections
- h. Renal and genitourinary system:
 - Hematuria
 - Dysuria
 - Proteinuria
 - Voiding dysfunctions
 - Renal failure (acute and chronic)
 - Acute and Chronic scrotal swelling
- i. Hemato-oncology:
 - Lymphadenopathy
 - Neck masses
 - Mediastinal mass
 - Pallor and anemia

- Bleeding
- Thrombosis
- j. Neurological disorders:
 - Seizures and non-epileptic paroxysmal events
 - Gait abnormalities
 - Paraplegia and quadriplegia
 - Macrocephaly and microcephaly
 - Floppy infant and hypotonia
 - Acute flaccid paralysis
 - Cerebral palsy and other neuromotor disability
 - Headache
 - Stroke
 - Altered mental status
- k. Endocrine disorders:
 - Thyroid swelling
 - Ambiguous genitalia
 - Obesity
 - Short stature
 - Precocious and delayed puberty
 - Disorders of sex development
 - Hypoglycemia
 - Polyuria
- l. Skin/Eye/ENT:
 - Skin rash
 - Pigmentary lesions
 - Congenital cutaneous lesions
 - Pain/discharge from ear
 - Hearing loss
 - Epistaxis
 - Refractory errors
 - Blindness
 - Cataract
 - Eye discharge
 - Red eye
 - Squint
 - Proptosis
- m. Miscellaneous:
 - Dysmorphic child
 - Multiple congenital anomalies
 - Irritable infant

Arthralgia and Arthritis
Limping child
Back pain in children and adolescents
Menstrual problems
Vaginal bleeding

2.3. Skills

a. History and examination:

History taking including psychosocial history
Physical examination including fundus examination and otoscopy
Developmental history and assessment
Nutritional history and anthropometry assessment with use of growth charts
Newborn examination, including gestation assessment
SMR staging
Full systemic examination
Communication with children and parents
Genetic counseling
Communication with other health functionaries and social support groups
Pediatric emergency triage assessment

b. Bedside procedures:

Therapeutic skills:

Orogastric and nasogastric tube insertion
Nasogastric feeding
Endotracheal intubation
Cardiopulmonary resuscitation
Synchronized cardioversion and defibrillation
Administration of oxygen (pediatric and neonatal)
Supplemental oxygen administration through nasal prongs, face mask
HFNC, CPAP and BiPAP administration
Nebulization and use of Metered Dose Inhaler (+Spacer/mask)
Venepuncture and establishment of vascular access
Intramuscular, subcutaneous and intradermal injections
Administration of fluids, blood, blood components
Parenteral nutrition
Establishing intraosseous access
Intrathecal and intra-articular administration of drugs
Common dressings and splinting
Abscess drainage
Urinary catheterization
Chest physiotherapy

- Limb physiotherapy
- Needle thoracotomy and intercostal drainage tube insertion
- Peritoneal dialysis
- Exchange transfusion
- Umbilical artery and vein catheterization
- Central venous access

Investigative skills:

- Blood sampling – venous and arterial
- Lumbar puncture
- Ventricular tap
- Bone marrow aspiration and biopsy
- Peritoneal, pleural, pericardial and subdural tap
- Kidney biopsy
- Liver biopsy
- Muscle and nerve biopsy
- Collection of urine for culture, suprapubic aspiration
- Collection of gastric aspirate and induced sputum
- Arterial cannulation

Bedside investigations:

- Hemoglobin, TLC, ESR
- Peripheral smear staining and examination
- Urine routine and microscopic examination
- Stool microscopy including hanging drop preparation
- Examination of CSF and other body fluids
- Gram stain
- ZN stain
- Shake test on gastric aspirate

Interpretation:

- X-rays, CT, MRI, Ultrasound of various body regions both normal and abnormal
- Pediatric ECG and echocardiogram
- Arterial and venous blood gas analysis
- Karyotype, microarray and other genetic tests
- Common EEG patterns
- Audiograms
- Isotope studies

3. Teaching program

3.1. General Principles

- a. Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training should be skills oriented.
- b. Learning in postgraduate program should be essentially self-directed and primarily emanating from clinical and academic work. The formal sessions are merely meant to supplement this core effort.

3.2. Orientation sessions for PG students

- a. This could be spread over 4-5 sessions once or twice a week depending on departmental routine and feasibility.

3.2.a.1. For all PG students

Orientation to the Hospital: Various departments and facilities available
Universal precautions and appropriate disposal of hospital waste
Communication skills: Patients and colleagues
Literature search
Basic research methodology
Protocol writing and thesis

3.2.a.2. For Pediatric PGs

Introduction to Residency in Pediatrics
Normal fluid and electrolyte requirement and their disorders
Management of acute diarrhea
Management of respiratory distress
Management of shock
Management of seizures and status epilepticus
Management of comatose patients
Hospital management of severe PEM
Acute kidney injury
Fulminant hepatic failure
Approach to a bleeding child and its management
Evaluation of a sick newborn
Rational antibiotic therapy

3.3. Formal Teaching Sessions

- | | |
|---|------------------|
| a. Bedside presentation and discussion: | Twice a week |
| b. Seminar: | Once a week |
| c. Case presentation: | Once a week |
| d. Journal club: | Once a fortnight |
| e. Statistical meet: | Once a month |

- | | |
|-----------------------------|--------------|
| f. Mortality meet: | Once a month |
| g. Inter-disciplinary meet: | Once a month |
| h. Others: | |
| Biostatistics | Twice a year |
| Communication skills: | Twice a year |
| Ethical and legal issues: | Once a year |
| Departmental symposium: | Twice a year |

3.4. Rotations

Postgraduate students must rotate through all clinical units of the department. This is especially important for him/her to get Pediatric subspeciality training. (All units also provide general pediatric care in addition to subspeciality).

PGS should also attend subspeciality clinics during their respective Unit postings

- | | |
|---|-----------|
| a. Within Pediatrics department: | 33 months |
| Neonatology: | 6 months |
| Pediatric Emergency and Intensive Care: | 6 months |
| Outpatient department: | 6 months |
| General ward: | 15 months |
| b. Other departments: | 3 months |
| Dermatology: | 15 days |
| Radiology: | 15 days |
| Community medicine: | 15 days |
| Laboratory services: | 15 days |
| Pediatric surgery: | 15 days |
| Electives: | 15 days |

4. Thesis

4.1. Objectives

By carrying out a research project and presenting his/her work in the form of thesis, the student will be able to:

- a. Identify relevant research question
- b. Conduct a critical review of literature
- c. Formulate a hypothesis
- d. Determine the most suitable study design
- e. State the objectives of the study
- f. Prepare a study protocol
- g. Undertake a study according to the protocol
- h. Analyze and interpret research data, and draw conclusions,
- i. Write a research paper

4.2. Guidelines

- a. While selecting thesis topics, following should be kept in mind:
- b. The scope of the study should be limited so that it is possible to conduct it within the resources and time available to the student;
- c. The emphasis should be on the process of research rather than the results;
- d. The protocol, interim progress as well as final presentation must be made formally to the entire department;

4.3. Timeline (from the time of admission to PG course)

- | | |
|--|----------------|
| a. Thesis protocol preparation and submission: | 4 months |
| b. Thesis protocol approval including IRC, IEC approvals: | 6 months |
| c. Interim progress report: | Every 6 months |
| d. Thesis completion and submission: | 2 years |
| e. Thesis manuscript preparation and submission to an indexed journal: | 2.5 years |

5. Assessment

5.1. General principles

- The assessment should be valid, objective, and reliable.
- It must cover cognitive, psychomotor and affective domains.
- Formative, continuing and summative assessment should be conducted in theory as well as practical/clinical. In addition, thesis should be assessed separately.

5.2. Overall Weightage

- Internal assessment: 20% (200 marks)
- Final summative examination: 80% (800 marks)

5.3. Formative assessment

The formative assessment should be continuous as well as end-of-term. The former should be based on the feedback from the senior residents and the unit faculty concerned. End-of-term assessment should be held at the end of each semester (up to the 5th semester). Formative assessment will not count towards pass/fail at the end of the program but will provide feedback to the candidate.

5.4. Internal assessment (200 marks)

S No	Item	Weightage (marks)	Timing of Assessment
1	Personal attributes*	10% (20)	At end of each posting/month
2	Clinical skills and performance	15% (30)	At end of each posting/month
3	Academic activities (case discussions, seminars, journal club, etc.)	10% (20)	Ongoing
4	Theory exam at the end of each year** (30: 30: 40 for first, second and third assessments)	25% (50)	End-semester
5	Practical exam at the end of each year*** (30: 30: 40 for first, second and third assessments)	25% (50)	End-semester
6	Publications	10 (5%)	End of the course

7	Presentation in conference	10 (5%)	End of the course
8	Workshops	10 (5%)	End of the course

*Personal attributes:

Availability: Punctual, available continuously on duty, responds promptly to calls, takes proper permission for leave.

Sincerity and motivation: Dependable, honest, admits mistakes, does not falsify information, exhibits good moral values, loyal to institution, has initiative, takes on responsibilities, goes beyond routine work, exhibits keen desire to learn.

Diligence and performance: Dedicated, hardworking, does not shirk duties, leaves no work pending, competent in clinical case work up and management, skilled in procedures, proficient in record keeping and file work.

Academic ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.

Interpersonal skills: Has compassionate attitude towards patients, gets on well with colleagues and paramedical staff.

**Syllabus for end-semester theory exams:

First assessment:

Semester I: Growth and development, nutrition, immunization, infectious diseases, biostatistics.

Semester II: Respiratory system, gastrointestinal and hepatobiliary system, cardiovascular system, central and peripheral nervous system.

Second assessment:

Semester III: Neonatology, pediatric emergency and intensive care.

Semester IV: Nephrology, hemato-oncology, immunology-rheumatology, endocrinology, genetics, social pediatrics and other specialties.

Third assessment/pre-final: Whole syllabus

a. *** End semester practical exam: case presentation, OSCE and viva

5.5. Summative Assessment

Ratio of marks in theory and practical will be equal – 400 each

Candidate will have to score at least 50% marks each in theory and practical examinations separately for passing

a. Theory examination: 400 marks

There would be 4 papers of 100 marks each

Each paper would consist of 10 questions of 10 marks each

Paper 1: Basic sciences as applied to pediatrics

Paper 2: Neonatology and community/social pediatrics

Paper 3: General pediatrics including advances in pediatrics relating to Cluster I specialties*

Paper 4: General pediatrics including advances in pediatrics relating to Cluster II specialties**

*Cluster I – Growth and development, nutrition, immunization, infectious diseases, emergency and critical care, gastrointestinal and hepatobiliary systems

**Cluster II – Respiratory system, Cardiovascular system, Nervous system, Nephrology, Hematology, Oncology, Endocrinology, Genetics, Immunology, Rheumatology, Miscellaneous

b. Practical examination: 400 marks

Two external and two internal examiners should conduct the examinations

Case 1: General Pediatrics/ any subspecialty: 60 marks

Case 2: General Pediatrics/ any subspecialty: 60 marks

Case 3: Ambulatory/ emergency care: 60 marks

Case 4: Neonatology: 60 marks

Viva (5 stations of 20 marks each): 100 marks

Instruments

Imaging

Social pediatrics

Drugs and Emergencies

Thesis

OSCE (3 stations of 20 marks each): 60 marks

Procedural skills

Counselling

Critical analysis of scientific literature

6. Recommended books and Journals

Sl No	Author	Title	Publisher	Edition and Year	Category (A, B, C)
Pediatrics Textbooks					
1	Vinod K Paul, Arvind Bagga	Ghai Essential Paediatrics	CBS	9th Edition, 2019	A
2	Kliegman, St Geme	Nelson Textbook of Paediatrics	Elsevier	21st Edition, 2019	A
3	Robert Kliegman, Patricia Lye	Nelson Pediatric Symptom Based Diagnosis	Elsevier	1 st Edition, 2017	A
4	Piyush Gupta	PG Textbook of Pediatrics	Jaypee	2 nd Edition, 2017	A
5	Mark W Kline	Rudolph's Pediatrics	McGraw Hill	23 rd Edition, 2019	A
6	Basil Zitelli, Sara McIntire	Atlas of Pediatric Physical Diagnosis	Elsevier	7th Edition, 2017	A
7	Julius Scott, Srinivasa Raghavan	Scott's Pediatrics	Paras	4th Edition, 2019	A
8	Krishna Goel, Robert Carachi	Hutchison's Atlas of Pediatric Physical Diagnosis	Jaypee	2nd Edition, 2019	A
Clinical Manuals					
9	Meharban Singh	Paediatric Clinical Methods	CBS	6th Edition, 2020	A
10	Aruchamy Lakshmanaswamy	Clinical Paediatrics	Wolters Kluwer	4 th Edition, 2016	AA
11	Piyush Gupta	Clinical Methods in Pediatrics	CBS	5th Edition, 2021	A
12	Santosh Kumar	Pediatric Clinical Examination	Paras	5th Edition, 2018	A
13	Mayoor Chedda	Practical Aspects of Pediatrics	CBS	7th Edition, 2019	A
14	Michael Glynn, William Drake	Hutchison's Clinical Methods	Elsevier	24th Edition, 2017	A
15	Alastair Innes, Anna Dover	Macleods Clinical Examination	Elsevier	14th Edition, 2018	A
Pediatric Drugs and Therapeutics					

16	Meharban Singh, Ashok Deorari	Drug Dosages in Children	CBS1	10th Edition, 2020	A
17	Keith Klienman, Lauren McDaniel	The Harriet Lane Handbook	Elsevier	22nd Edition (SAE), 2020	A
Growth, Development, Nutrition and Immunization					
18	K E Elizabeth	Nutrition and Child Development	Paras	6th Edition, 2015	A
19	Madhu Sharma	Basic Pediatric Nutrition	Jaypee	2nd Edition, 2017	A
20	Ronald S Illingworth	Illingworth's The Development of the Infant and the Young Child: Normal and Abnormal	Elsevier	11th Edition, 2021	A
21	Srinivasa Raghavan	Scott's Pediatricks Speciality Series: Developmental and Behavioural Pediatrics with Adolescent Medicine	Paras	1st Edition, 2021	A
22	Gunasekaran Shandapany	Scott's Pediatricks Speciality Series: Growth and Nutrition in Children	Paras	1st Edition, 2021	A
23	Balasubramaniam	IAP Guidebook on Immunization 2018-19	Jaypee	3 rd Edition, 2020	A
Neonatology					
24	Meharban Singh	Care of the Newborn	CBS	Revised 8 th Edition, 2017	A
25	Eric C. Eichenwald, Anne R. Hansen	Cloherty and Stark's Manual of Neonatal Care	Wolters Kluwer	8th Edition (SAE), 2017	A
26	Ramesh Agarwal, Ashok Deorari, Vinod Paul	AIIMS Protocols in Neonatology	Noble	2nd Edition, 2019	A
27	Rama Bhat, Praveen Kumar	Handbook of Neonatology	IJP	1st Edition, 2018	A
28	Helen Baston, Heather Durward	Examination of the Newborn - A Practical Guide	Routledge	3rd Edition, 2016	A
29	Christine A Gleason, Sandra E Juul	Avery's Diseases of Newborn	Elsevier	1 st South Asia Edition, 2018	C
30	Joseph Volpe, Terrie Inder	Volpe's Neurology of the Newborn	Elsevier	6th Edition, 2017	C
31	Jay P Goldsmith, Edward Karotin	Assisted Ventilation of the Neonate	Elsevier	6 th Edition, 2016	C

32	Richard Martin, Avroy Fanaroff	Fanaroff and Martin's Neonatal-Perinatal Medicine	Elsevier	11th Edition, 2019	C
33	Richard Polin, Steven Abman	Fetal and Neonatal Physiology	Elsevier	6th Edition, 2021	C
34	Christopher Wilson, Victor Nizet	Remington and Klein's Infectious Diseases of Fetus and Newborn Infant	Elsevier	8th Edition, 2015	C
Pediatric Emergency and Intensive Care					
35	Sunit Singhi, Jayashree Muralidharan	PGIMER Management Protocols in Emergency Medicine		2020	A
36	S K Kabra, Rakesh Lodha	Paediatric Intensive Care Protocols of AIIMS	IJP	8th Edition, 2022	A
37	Santosh T Soans, Nitin Chawla	IAP Textbook of Pediatric and Neonatal Emergencies	Jaypee	1 st Edition, 2020	A
38	Soonu Udani, Jayashree Muralidharan	IAP Speciality Series on Pediatric Intensive Care	Jaypee	3 rd Edition, 2019	A
39	J M Cairo	PilBeam's Mechanical Ventilation	Elsevier	7th Edition, 2019	A
40	Jerry Zimmerman	Fuhrman and Zimmerman's Pediatric Critical Care	Elsevier	6th Edition, 2021	C
41	Donald Shaffner, David Nichols	Roger's Textbook of Pediatric Intensive Care	Lippincott Williams and Wilkins	5th Edition, 2015	C
42	James Chamberlain, Jane Lavelle	Fleisher and Ludwig's Textbook of Pediatric Emergency Medicine	Wolters Kluwer	8 th Edition, 2020	C
43	Paul Marino, Samuel Galvagno	Marino's The Little ICU Book	Wolters Kluwer	2nd Edition (South Asian), 2018	A
44	Iain Hennessey, Alan Japp	Arterial Blood Gases Made Easy	Elsevier	2nd Edition, 2015	A
45	Leonard Feld, Frederick Kaskel	Fluid and Electrolytes in Pediatrics - A Comprehensive Handbook	Humana Press	2010	A
46	Stephanie Doniger	Pediatric Emergency and Critical Care Ultrasound	Cambridge	1st Edition, 2014	A
47	Marsha Elkhunovich, Tarina Kand	Pediatric Emergency Ultrasound - a Consise Guide	CRC Press	2020	A

Pediatric Hemato-oncology					
48	Jonathan D Fish, Jeffrey Lipton	Lanzkowsky's Manual of Pediatric Hematology and oncology	Academic press	7th Edition, 2021	C
49	Anupam Sachdeva	Practical pediatric hematology	Jaypee	2nd Edition, 2012	A
50	Stuart Orkin, David Nathan	Nathan and Oski's Hematology and Oncology of Infancy and Childhood	Saunders	8 th Edition, 2015	C
Pediatric Nephrology					
51	R. N. Srivastava, Arvind Bagga	Paediatric Nephrology	Jaypee	6th Edition, 2016	A
52	Arvind Bagga, Aditi Sinha	Protocols in Pediatric nephrology	CBS	2019	A
53	Francesco Emma, Stuart Goldstein	Pediatric Nephrology	Springer	8th Edition, 2021	C
Pediatric Infectious Diseases					
54	Parthasarathy	IAP Textbook of Pediatric Infectious Diseases	Jaypee	2 nd Edition, 2019	A
55	David Kimberlin, Elizabeth Barnett	Redbook 2021: Report of the Committee on Infectious Diseases	American Academy of Pediatrics	32nd Edition, 2021	A
56	James Cherry, Gail Demmler-Harrison	Feigin and Cherry's Textbook of Pediatric Infectious Diseases	Elsevier	8th Edition, 2018	C
57	Sarah Long, Charles Prober	Principles and Practice of Pediatric Infectious Diseases	Elsevier	5th Edition, 2017	C
Pediatric Neurology					
58	Veena Kalra	Practical Pediatric Neurology	Arya Publications	2nd Edition, 2020	A
59	Eric Pina-Garza, Kaitlin C James	Fenichel's Clinical Pediatric Neurology	Elsevier	8th Edition, 2019	A
60	Kenneth Swaiman, Donna Ferriero	Swaiman's Pediatric Neurology: Principles and Practice	Elsevier	6th Edition, 2017	C
61	John Pellock, Douglas Nordli	Pellock's Pediatric Epilepsy	Domos Medical Publishing	4th Edition, 2016	C
62	Anoop Verma, PAM Kunju	IAP Textbook of Pediatric Neurology	Jaypee	2019	A

63	James Barkovich, Charles Raybaud	Pediatric Neuroimaging	LWW	6th Edition, 2019	C
Pediatric Pulmonology					
64	Rakerd Edition, 2018sh Lodha, Sushil K Kabra	Essential Pediatric Pulmonology	Jaypee	3 rd Edition, 2018	A
65	John West, Andrew Luks	West's Respiratory Physiology - The Essentials	Wolters Kluwer	7th Edition, 2020	A
66	Robert Wilmott,	Kendig's Disorders of the Respiratory Tract in Children	Elsevier	9th Edition, 2018	C
67	Jonathan Corne, Maruti Kumaran	Chest X-Ray Made Easy	Elsevier	4th Edition (IE), 2015	A
68	Gerald Lacey, Simon Morley	The Chest X-ray: A Survival Guide	Saunders	1st Edition, 2008	A
69	Swapan K Ray	Chest X-ray in Neonates and children	Jaypee	2019	A
Pediatric Gastroenterology					
70	Ashish Bhavdekar	IAP Speciality Series on Pediatric Gastroenterology	Jaypee	2 nd Edition, 2013	A
71	A Riyaz	Pediatric Gastroenterology and Hepatology	Paras	4th edition, 2019	A
72	Robert Wyllie, Jeffrey hyams	Pediatric Gastrointestinal and Liver Disease	Elsevier	6th Edition, 16 Dec 2020	C
73	Frederick Suchy, Ronald Sokol	Liver Disease in Children	Cambridge	5th Edition, 18 Mar 2021	C
74	Stefano Guandalini, Anil Dhawan	Textbook of Pediatric Gastroenterology, Hepatology and Nutrition	Springer	2nd Edition, 26 Dec 2021	C
Pediatric Cardiology					
75	Myung K Park, Mehrddad Salamat	Park's Paediatric Cardiology	Elsevier	7 th Edition, 2020	A
76	Joseph Perloff, Ariane Marelli	Perloff's Clinical Recognition of Congenital Heart Disease	Elsevier	6th Edition, 30 Mar 2012	A
77	Robert Shaddy, daniel Penny	Moss and Adams' Heart Disease in Infants, children, and Adolescents	Wolters Kluwer	10th Edition, 25 Mar 2021	C
78	John Hampton, Joanna Hampton	The ECG Made Easy	Elsevier	9th Edition, 1 Jan 2019	A

79	Myung K Park, Warren Guntheroth	How to read Pediatric ECGs	Elsevier	4th Edition, 29 Mar 2006	A
80	William F Armstrong	Feigenbaum's Echocardiography	Wolters Kluwer	8th Edition (South Asian), 1 Jan 2019	C
81	Sam Kaddoura	Echo Made Easy	Elsevier	3rd Edition (IE), 1 Jan 2017	A
Pediatric Endocrinology					
82	Vaman Khadilkar	IAP Textbook on Pediatric Endocrinology	Jaypee	1st Edition, 1 Jan 2019	A
83	Mark Sperking, Joseph Majzoub	Sperling Pediatric Endocrinology	Elsevier	5th Edition, 27 October 2020	A
84	Mehul Dattani, Charles Brook	Brook's Clinical Pediatric Endocrinology	Wiley	7th Edition, 1 Nov 2019	C
Pediatric Rheumatology					
85	Surjit Singh, Anju Gupta	Pediatric Rheumatology	Peepee	3rd Edition, 1 Jan 2018	A
86	Ross E Petty, Ronald M Laxer	Textbook of Pediatric Rheumatology	Elsevier	8th Edition, 29 Mar 2021	C
Pediatric Genetics					
87	Umamaheshwari Balakrishnan	Scott's Pediatricks Speciality Series: Genetic and Inherited Metabolic Disorders in children	Paras	1st Edition, 1 Jan 2021	A
88	Kenneth Lyons Jones, Marilyn Crandall Jones	Smith's Recognizable Patterns of Human Malformation	Elsevier	8th Edition, 1 Jul 2021	C
89	William Reardon	The Bedside Dysmorphologist	Oxford	2nd Edition, 12 Nov 2015	C
90	William Nyhan Georg Hoffmann	Atlas of Inherited Metabolic Diseases	CRC Press	4th Edition, 4 Aug 2020	C
91	Reed Pyeritz, Bruce KOrf	Emery and Rimoin's Principles and Practice of Medical Genetics and Genomics: Clinical Principles and Applications	Academic Press	7th Edition, 23 Nov 2018	C
Pediatric Psychiatry					
92	Mina Dulcan	Dulcan's Textbook of Child and Adolescent Psychiatry	American Psychiatric Association,	3rd Edition, 17 Dec 2021	C

93	Andres Martin, Micheal Bloch	Lewis Child and Adolescent Psychiatry: A Comprehensive Textbook	Wolters Kluwer	5th Edition, 1 Jan 2017	C
94	Jagdish Vyas	Textbook of Child and Adolescent Psychiatry	Paras	2017	C
Pediatric Dermatology					
95	Amy Paller, Anthony Mancini	Hurwitz Clinical Pediatric Dermatology	Elsevier	6th Edition, 28 Jun 2021	C
Pediatric Orthopedics					
96	John A Herring	Tachdjian's Pediatric Orthopedics	Elsevier	7th Edition, 8 Feb 2021	C
Pediatric Radiology					
97	Ananda Kesavan, Venkateshwaran	IAP Textbook of Pediatric Radiology	Jaypee	1 st Edition, 2020	A
98	Arun Gupta, Anju Garg	Diagnostic Radiology Pediatric Imaging, AIIMS-MAMC-PGI Imaging Series	Jaypee	4th Edition, 1 Nov 2020	C
Social Pediatrics					
99	AK Patwari, HPS Sachdev	Frontiers in Social Pediatrics	Jaypee	2 nd Edition, 2016	A
Pediatric Surgery					
100	George Holcomb, Patric Murphy	Holcomb and Ashcraft's Pediatric Surgery	Elsevier	7 th Edition, 2019	C
Biostatistics					
101	Bratati Banerjee	Mahajan's Methods in Biostatistics for Medical Students and Research Workers	Jaypee	9th Edition, 28 Feb 2018	B
102	Martin Bland	An Introduction to Medical statistics	Oxford	4th Edition, 23 Jul 2015	B
103	Edward Livingston, Roger Lewis	JAMA Guide to Statistics and Methods	Mc Graw Hill	11 Dec 2019	B
104	Janet Peacock, Phil Peacock	Oxford Handbook of Medical Statistics	Oxford	11 Jun 2020	B
105	Anthony Glaser	High-Yield Biostatistics, Epidemiology and Public Health	Wolters Kluwer	4th Edition, 1 Jan 2013	B

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Indian Journal of Pediatrics
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Pediatric Clinics of North America
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New England Journal of Medicine
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