DETAILED SYLLABUS FOR THE POST OF ASSISTANT PROFESSOR IN PAEDIATRICS IN MEDICAL EDUCATION- DIRECT RECRUITMENT

(Cat.No: 348/2023)

Module 1

Growth and Development Mark (10)

Normal growth: Foetal growth

Factors affecting growth

Laws of growth

Physical growth assessment: Weight, height, head circumference, mid upper arm circumference (MUAC), body proportion, bone growth, dental growth, sinus growth

Adolescent growth: Physical, Sexual growth, Sexual maturity rate (SMR)

Abnormal growth: Short stature, tall stature, microcephaly, macrocephaly, failure to thrive, obesity

Growth charts

Bone age assessment

Adolescent health problems: violence, bullying, suicidal attempt, Psychological problems, sleep problems, eating disorders

Development:

Normal development: Gross motor, fine motor, language social development

Developmental assessment: Trivandrum development screening chart (TDSC), Denver development screening test, (DDST) Bayley scale of infant development (BSID)

Abnormal development: types – global delay, selective delay

Intellectual delay, specific learning disorders, Autism spectrum disorders, attention deficit hyperactivity disorders.

Language delay: Dyslexia, dyscalculia

Conduct disorders; Temper tantrum, pica, breath holding spell, thumb sucking, lying, enuresis

Social issues : Adoption, Foster care, injury control

Adolescent programmes: Kishori Shakthi Yojana, SABALA, National Youth Policy

Module 2

Nutrition, Fluid Electrolytes & Gastrointestinal disorders (15 marks)

Applied Nutrition: proximate principles- Carbohydrate, Proteins, Fats

Nutritional requirement and balanced diet

My plate concept, nutrition pyramid

Total body fluid and fluid compartments: maintenance therapy

Electrolyte Homeostasis: Sodium- Maintenance, Hypo & hypernatremia

Potassium maintenance, Hypokalemia, hyperkalaemia

Calcium maintenance, hypo & hyper calcaemia

Magnesium, Chloride, Phosphate maintenance

Micronutrients: Physiology and deficiency of Fe, Cu, Zn

Fat soluble Vitamins A D E K

Water soluble vitamins

Protein Energy Malnutrition: Severe Acute malnutrition, Kwashiorkor, Marasmus

BFHI , IYCN, National nutrition programmes

GIT

Development of GIT, Congenital anomalies: cleft lip, palate, Tracheoesophageal fistula, congenital diaphragmatic hernia, congenital mega colon

Intestinal disorders

Inflammatory bowel disease: Ulcerative colitis, Crohns disease

Malabsorption syndrome, Cystic fibrosis

Acute diarrhoea, chronic diarrhoea

LFT, Neonatal cholestasis, Portal hypertension, GI bleeding

Acute hepatitis, Fulminant hepatic failure

Chronic hepatitis, cirrhosis, portal hypertension, hepatic encephalopathy

Auto immune hepatitis, Metabolic liver disease, Wilson’s disease

Module 3

New born, Genetics, Inborn error of Metabolism (15)

Foetal medicine: Foetal growth, wellbeing, assessment, therapy

Maternal influences in foetus

Transition from foetus to new born

Organization of new born care- primary, secondary, tertiary

Resuscitation of NB & NB Transport

Normal NB care

Pre Term – Gestational Age Assessment, Feeding

Preterm problems: HMD, NEC, ROP,PDA,

IUGR and Problems

Birth injuries

Neonatal jaundice

Infant of diabetic mother, hypoglycaemia

Haematological problems of NB

Central nervous system problems of NB; HIE, Seizure,

Respiratory Problems in NB & ventilation

Genetics :

Patterns of inheritance

Karyotyping

Newer genetic investigations, FISH, Microarray

Clinical exome, Whole genome sequencing, whole exome sequencing

Chromosomal disorders

Single gene disorders

Gene therapy

Inborn error of metabolism: clinical approach

Amino acid metabolism abnormalities, urea cycle disorders

Fatty acid oxidation defects

Glycogen storage disorders,

Muco-polysaccharadosis

Lipid storage disease

Enzyme replacement therapy

Module 4

Cardio vascular disorders (8marks)

Development of heart

Foetal circulation, Persistent foetal circulation

Cardiac investigations: X-ray chest, ECG, Echocardiography, cardiac catheterisation

Cardiac malposition

Acyansotic heart disease: shunt lesion- ASD,VSD,PDA

Valvular heart disease- AS, PS, Coarctation of aorta

Cyanotic heart disease: Decreased pulmonary flow condition- Tetrology of Fallot and Fallot like condition

Increase pulmonary flow condition: Tricuspid atresia, TGA

Congestive heart disease

Infective endocarditis

Cardiomyopathy

Anomalous origin of left coronary artery from pulmonary artery

Hypertension

Rheumatic fever &RHD

Cardiac arrhythmia

Kawasaki disease

Haematological malignancies:

Leukemias: ALL,AML,CML

Lymphoma: Hodgkins lymphoma, non Hodgkin lymphoma

Solid tumours: Wilms tumour, Neuroblastoma, soft tissue sarcoma, Hepatic tumour, HLH,

Module 5

Respiratory system & Endocrine system(10 marks)

Development of lungs, congenital laryngeal stridor, cystic pulmonary malformation

Upper airway obstruction

Pulmonary function tests, impedance oscillometry, Arterial blood gas analysis

Investigations in respiratory system, Ultrasound in lung conditions

Community acquired pneumonia in children, IMNCI

Suppurative lung disease- bronchiectasis, lung abscess

Pleural disease

Ciliary dyskinesia, cystic fibrosis, alpha -1 anti trypsin deficiency

Bronchial asthma

Acute severe asthma

Air leak syndromes

Oxygen therapy

Non invasive ventilation

ECMO

Environmental tobacco exposure

Sudden infant death syndrome

Interstitial lung disease

Endocrine system:

Hypo and hyper pituitarism

Adrenal disorders: CAH, hypo and hyperadrenalism

Thyroid disorders

Sexual disorders: Precocious puberty, Delayed puberty

Diabetes mellitus,

Module 6

Central nervous system (10 marks)

Brain development

Congenital anomalies of brain & spinal cord

Microcephaly, hydrocephalus, neural tube defects

Investigations in CNS: Lumbar puncture, MRI,CT, Neuro-sonogram, EEG,NCV,EMG,VEP,BERA

Headache in children; migraine, ICSOL

CNS infections: meningitis, encephalitis, TBM

Coma, ICP monitoring

Seizures in children, status epilepticus

Antiepileptic medications

Stroke in children

Cerebral palsy

Movement disorders in children

Demyelinating disorders in children

Acute flaccid paralysis, Guillen Barre Syndrome, transverse myelitis

Floppy child, SMA, Myopathy, muscular dystrophy

Motor neuropathy

Degenerative disease in children

Module 7

Renal disease (6 marks)

Development of kidney

Congenital anomalies of kidney and urinary tracts

Haematuria : causes, approach

Nephritis ,post infectious, IgA nephropathy, Alports syndrome

HUS, SLE

Proteinuria: Minimal change, secondary nephrotic syndrome, congenital, resistant nephrotic syndrome

Acute Kidney injury

Chronic kidney disease

Renal replacement therapy

Tubular disease

Renal calculi

Refractory rickets

Urinary tract infections

Voiding disorders

Module 8

Haematology, immunology & vaccinology -Marks (8)

Development of hematopoietic cells, erythropoietin

Anaemias: deficiency anaemia

Haemolytic anaemias:

Membrane defect,

Haemoglobin defect: Thalassemia, Sickle cell anaemia

Enzyme defects

Auto immune haemolytic anaemia

DIC

Aplastic anaemia

Blood component therapy

Stem cell transplant

Coagulation disorders

Thrombocytopenia and bleeding disorders

Thrombotic disorders

Immunology: basic immunology- T-cell defects, B cell defect, NK cell defects, Complement defects

Primary immune deficiency

Investigations in immune deficiency

Secondary immune deficiency

Immunization: Basic vaccinology- active immunity, passive immunity

Cold chain

Vaccination schedules

Individual vaccines: BCG, OPV, IPV, Pentavalent vaccine, rotavirus vaccine, Pneumococcal vaccine, Rabies vaccine, Meningococcal vaccine, human papilloma vaccine, Dengue vaccine, Influenza vaccine

Module 9

ENT/Ophthalmology/Dermatology/Orthopaedics/Rheumatology (marks 8)

Clinical and lab investigations in Rheumatology,

Anti-rheumatologic agents

JIA, SLS, Juvenile Dermatomyositis, systemic sclerosis, Takayasu arteritis

APLA syndrome

EYE: congenital anomalies of eye, Refractive errors, Squint, Congenital cataract, Congenital glaucoma, uveitis, retinoblastoma

Dermatology: Atopic dermatitis, infections, nutritional disease affecting skin, dermatological manifestation of systemic disease

Hair diseases

Paediatric orthopaedics: Osteomyelitis, Septic arthritis

DDH, CTEV

Idiopathic scoliosis

ENT disorders:

Acute / Chronic tonsillitis, Adenoid hypertrophy

Acute & chronic otitis media

Deafness

Module 10

Infections in children (marks10)

Lab diagnosis in infections

Infection therapeutics: Antibiotics, Antiviral, Antifungal, Anti parasitic agents

Antibiotic stewardship, and Antibiotic resistance

Infection control measures

Infection in immunocompromised host

Bacterial infections

Tuberculosis in children-RNTC, NTEP, Latent TB,TBM

Atypical mycobacteria

Leprosy

Viral infections

HIV , ART

Fungal infections,

Parasitic infections

Protozoal infection

Spirochete infection

Rickettsial infection

Chlamydial infection

Mycoplasma infections

Haemorrhagic fever

Exanthematous fever and fever, rash surveillance programme

Filarial infection

Amoebiasis

ADD and ADD control programme, Cholera.

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.