FCPS P-I

Q-WORLD

Paediatrics

SBA & MCQ

3rd Edition

A Publication of

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Preface

FCPS is one of the most prestigious postgraduate degrees for paediatricians. Success in the FCPS Part-I examination largely depends on understanding the pattern of questions rather than mere memorization of facts. With the increasing emphasis on analytical thinking and Single Best Answer (SBA) based assessment, smart, question-oriented preparation has become essential.

To address this need, Synapse Medical Academy proudly presents an exam-strategy–oriented book titled **"FCPS Part-I Q-World: Paediatrics."** This book is designed to guide candidates toward effective and focused preparation for the FCPS Part-I examination.

The book includes updated previous years' questions, carefully constructed **SBA & MCQ** questions, and selected practice questions, with special emphasis on important and frequently asked topics. The inclusion of both SBA and MCQ formats helps candidates develop clinical reasoning as well as improve speed and accuracy for the examination. The question-based format enables students to identify examination trends, strengthen core concepts, and revise efficiently within limited time.

I would like to express our sincere gratitude to the Synapse Paediatrics Team, who worked with dedication and commitment to develop this book in simple, clear, and student-friendly language. Their effort aims to build confidence and enhance exam readiness among FCPS Part-I candidates in Pediatrics.

Best Regards
Publication Team
Synapse Medical Academy

Editorial Board

Contributors

Special Thanks

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Embryology

SBA

01. Factor responsible for transform Primitive gonad to definitive gonad *(FCPS January 2025)*

a) Primitive sex cord
b) Paramesonephric duct
c) Mesonephric duct
d) Primordial germ cell
e) Proliferating body epithelium

Answer: D

Explanation:

The primordial germ cells migrate from the yolk sac endoderm to the developing gonadal ridge. Their arrival induces differentiation of the primitive gonad into a definitive gonad (testis or ovary). Without these cells, the gonad remains undifferentiated.

02. Derivatives 4th pharyngeal arch *(FCPS July 2024)*

a) Facial nerve
b) Thyroid cartilage
c) Malleus
d) Stapes
e) Hyoid bone

Answer: B

Explanation:

a, d, e - 2nd pharyngeal arch
c - 1st pharyngeal arch

03. Remnant of vitelline Duct *(FCPS July 2024)*

a) Meckel's diverticulum
b) Umbilical sinus
c) Umbilical hernia
d) Exomphalos
e) Omphalocele

Answer: A

Explanation:

Meckel's diverticulum: A small part of vitello-intestinal duct close to midgut (ileum) persists and forms the Meckel's diverticulum. It may be connected to the umbilicus by a fibrous cord (the obliterated remaining part of vitello-intestinal duct).

Meckel's diverticulum is a small diverticulum arising from antimesenteric border of ileum; it is about 2 inches (5 cm) in length, is present about 2 feet (60 cm) proximal to ileocecal junction, and occurs in about 2% of people. It may contain gastric mucosa or pancreatic tissue. There might be ulceration, bleeding, or even perforation of Meckel's diverticulum. It may undergo inflammation, symptoms of which may mimic to that of appendicitis.

(Ref: Clinical embryology-Vishram singh 3rd ed)

04. Failure to go back of intestinal content in IUL - *(FCPS July 2024)*

a) Viteline fistula
b) Omphalocele
c) Gastroschrisis
d) Umbilical hernia
e) Meckel's diverticulum

Answer: B

Explanation:

Omphalocele: Herniation of bowel loops occurs through umbilical opening as a normal event of development (physiological herniation) but fail to return in abdominal cavity later

Gastroschisis: In this anomaly, there is a linear defect in anterior abdominal wall through which abdominal contents herniate out.

Congenital umbilical hernia: Herniation of bowel loops occurs through weak umbilical opening (i.e.,
occurs when umbilicus fails to close properly)

(Ref: Clinical embryology - Vishram singh 3rd ed)

05. Sacrococcygeal teratoma is the remnant of - *(FCPS July 2024)*

a) Cloacal membrane
b) Primitive streak
c) Primitive node
d) Notocord
e) Neural tube

Answer: B

SBA Practice Questions

01. A 10-year-old boy developed a midline cyst which moves upwards on swallowing and with tongue protrusion. What is most likely diagnosis?

a) Dermoid cysts
b) Thyroglossal cyst
c) Cystic hygroma
d) Thyroid cyst
e) Submental lymph node

Answer: B

02. Which one of the following structures is derived from the midgut?

a) Appendix
b) Stomach
c) Liver
d) Pancreas
e) Sigmoid colon

Answer: A

03. A baby born to a young woman whose pregnancy was complicated by polyhydramnios & repeated vomiting containing bile. The stomach was markedly distended, and only small amounts of meconium had passed through the anus. AXR shows 'Double bubble sign'. What is the most likely diagnosis?

a) Esophageal stenosis
b) Annular pancreas
c) Hypertrophic pyloric stenosis
d) Extrahepatic biliary atresia
e) Duodenal atresia

Answer: E

04. The midgut loop normally herniates through the primitive umbilical ring into the extraembryonic coelom during week 6 of development. Failure of the intestinal loops to return to the abdominal cavity by week 11 results in the formation of-

a) Omphalocele
b) Gastroschisis
c) Anal agenesis
d) Ileal diverticulum
e) Intestinal stenosis

Answer: A

05. A 1-month-old baby with severe jaundice since birth. He has dark colored urine (deep yellow) and white clay colored stool. Which of the following disorders might be suspected?

a) Esophageal stenosis
b) Annular pancreas
c) Hypertrophic pyloric stenosis
d) Extrahepatic biliary atresia
e) Duodenal atresia

Answer: D

06. A 28 Day old baby is brought to the physician because of projectile vomiting after feeding. Until this time, the baby has had no problems in feeding. On examination, a small olive shape mass is palpated at the right costal margin. Which of the following disorders might be suspected?

a) Esophageal stenosis
b) Annular pancreas
c) Hypertrophic pyloric stenosis
d) Extrahepatic biliary atresia
e) Duodenal atresia

Answer: C

07. The uterine tubes of the adult female are derived embryologically from which of the following?

a) Mesonephric duct
b) Mesonephric tubules
c) Paramesonephric duct
d) Paramesonephric tubules
e) Uterovaginal primordium

Answer: C

Histology

SBA

01. Non-ionizing radiation is seen in which imaging technique? *(FCPS January 2025)*

a) Plain radiography
b) Contrast radiography
c) CT scan
d) MRI
e) PET scan

Answer: D

Explanation:

MRI (Magnetic Resonance Imaging) uses strong magnetic fields and radiofrequency waves, not X-rays.

Therefore, it produces images without using ionizing radiation, unlike:

- Plain radiography, contrast radiography, and CT scan, which all use X-rays (ionizing radiation).
- PET scan uses radioactive tracers (also ionizing).

02. Stratified columnar epithelium is found in *(FCPS January 2025)*

a) Bronchi
b) Conjunctiva
c) Auditory tube
d) Urinary bladder
e) Ducts of sweat glands

Answer: B

Explanation:

Characteristics:

- ➢ Cells form many layers
- ➢ Its superficial cells are columnar
- ➢ The deeper layer is composed of a low polyhedral to cuboidal cells. They are in contact with basal lamina

Distribution:

It is rare, present in the human body only in small areas, such as -

✴ Conjunctiva

✴ Large ducts of salivary gland

Function:

➤ Protection

03. Myoepithelial cell found in *(FCPS January 2025)*

a) Breast
b) Kidney
c) Lungs
d) Brain
e) Eyes

Answer: A

Explanation:

Myoepithelial cells are specialized, contractile cells. They play a vital role in expelling saliva and other glandular secretions.

Location: Myoepithelial cells are found in the secretory units of many exocrine glands, including salivary, mammary, lacrimal, and sweat glands.

04. Abundant intermediate filament of epithelial cell- *(FCPS January 2025)*

a) Keratin
b) Vimentin
c) Synemin
d) Lamins
e) Nestin

Answer: A

Explanation:

Epithelial cells contain **keratin** as their major intermediate filament protein.

- **Keratin** provides **mechanical strength and structural stability** to epithelial cells.
- **Vimentin** — found in **mesenchymal cells** (e.g., fibroblasts, endothelial cells).
- **Desmin** — in **muscle cells**.
- **Lamins** — in **nuclear lamina of all cells**.
- **Nestin** — in **neural stem cells**.

05. Peripheral protein act as *(FCPS January 2025)*

a) Enzyme
b) Ion channel
c) Pump
d) Receptor
e) Carrier

Answer: A

General Anatomy

SBA

01. Aspiration of a foreign body most commonly occurs in which part of the airway? *(FCPS January 2025, January 2024)*

a) Carina
b) Middle part of right lobar bronchus
c) Left bronchus
d) Right bronchus
e) Upper part of left lobar bronchus

Answer: D

Explanation:

- The right main bronchus is wider, shorter, and more vertical than the left main bronchus.
- Due to this anatomical configuration, aspirated foreign bodies are more likely to enter the right bronchus.
- The left bronchus is narrower, longer, and more horizontal, making aspiration less common on that side.
- The carina is the bifurcation of the trachea, and foreign bodies usually pass beyond it into the bronchi

02. Intramuscular injection in the gluteal region can cause injury to which nerve? *(FCPS January 2025)*

a) Superior gluteal nerve
b) Inferior gluteal nerve
c) Sciatic nerve
d) Common peroneal nerve
e) Tibial nerve

Answer: C

Explanation:

- The sciatic nerve runs deep in the gluteal region, usually exiting below the piriformis muscle.
- Improper intramuscular injections in the superomedial or central gluteal area can directly injure the sciatic nerve.
- Injury to the sciatic nerve can result in pain, numbness or weakness in the posterior thigh, leg, and foot.
- To avoid this, injections should be given in the upper outer quadrant of the gluteal region.

03. Erb's palsy is caused by injury to which part of the brachial plexus? *(FCPS January 2025)*

a) Injury to the upper trunk
b) Injury to the lower trunk
c) Injury to the posterior cord
d) Injury to the anterior division
e) Injury to the lateral cord

Answer: A

Explanation:

- Erb's palsy results from injury to the upper trunk of the brachial plexus, which is formed by the C5 and C6 nerve roots.
- Common causes include difficult vaginal delivery, excessive traction on the shoulder, or trauma to the neck/shoulder.
- The affected muscles include deltoid, biceps, brachialis, and brachioradialis, leading to characteristic "waiter's tip" position: arm adducted, internally rotated, elbow extended, and forearm pronated.
- Injury to the lower trunk (C8–T1) causes Klumpke's palsy, which affects hand muscles rather than the shoulder and upper arm.

04. Epistaxis most commonly occurs due to rupture of which artery? *(FCPS January 2025)*

a) Sphenopalatine artery
b) Greater palatine artery
c) Lateral nasal artery
d) Angular artery
e) Superior labial artery

Answer: A

Explanation:

- Epistaxis (nosebleed) is often caused by rupture of arteries supplying the nasal mucosa.
- The sphenopalatine artery, a terminal branch of the maxillary artery, is the most common source of posterior epistaxis, which can be severe.
- Anterior epistaxis usually involves Kiesselbach's plexus, formed by the anterior ethmoidal, superior labial, and greater palatine arteries.

11. Position of pelvic type vermiform appendix

a) 12 O clock
b) 11 O clock
c) 4 O clock
d) 2 O clock
e) 6 O clock

Answer: C

12. Double bubble sign is consistent with

a) Meconium ileus
b) Duodenal atresia
c) Upper jejunal atresia
d) Infantile hypertrophic pyloric stenosis
e) Necrotizing enterocolitis

Answer: B

13. Which does not pass through the transpyloric plane

a) Splenic vein
b) Tips of the 9th costal cartilages
c) Lower border of L1
d) Spleen
e) Superior mesenteric artery

Answer: A

14. Superior pancreaticoduodenal vein drains into

a) Left gastric vein
b) Portal vein
c)Splenic vein
d) Superior mesenteric vein
e) IVC Correct

Answer: B

15. The ligament of Treitz represents:

a) Mesentery of the duodenum
b) Retroduodenopancreatic fascia
c) Suspensory ligament of the duodenum
d) The landmark between stomach and duodenum
e) The connection between duodenum and pancreas

Answer: C

16. What type of organ is the rectum:

a) Intraperitoneal organ
b) Infraperitoneal organ
c) Retroperitoneal organ
d) Subperitoneal organ
e) Partially intraperitoneal organ

Answer: E

17. Anatomically speaking the landmark between the right and left lobe of the liver is the:

a) Coronary ligament
b) Round ligament
c) Falciform ligament
d) Portal vein
e) Venous ligament

Answer: C

18. Which statement about the layers of the alimentary canal is correct?

a) The serosa absorbs the products of digestion.
b) The mucosa protects against self-digestion.
c) The sub-mucosa is involved in segmentation and peristalsis
d) The muscularis externa is dense connective tissue)
e) None of them

Answer: B

19. Meckels diverticulitis

a) Affects 1% of general population
b) Commonly present with painful rectal bleeding
c) False diverticulum
d) Symptomatic after 2 years
e) Most common malformation of the gastrointestinal tract

Answer: B

20. Common cause of upper GI bleeding in neonates

a) Milk allergy
b) Esophagitis
c) Duodenitis
d) Mallory- weiss syndrome
e) Esophageal varices

Answer: C

21. Most common site of ischemia colon

a) Ascending colon
b) Transverse colon
c) Hepatic flexure
d) Splenic flexure
e) Sigmoid colon

Answer: A

Cell Physiology

SBA

01. Peripheral proteins in the cell membrane primarily act as: ***(FCPS January 2025)***

a) Enzyme
b) Ion channel
c) Pump
d) Receptor
e) Structural support

Answer: A

Explanation:

All are functions of integral protein. But peripheral protein acts almost entirely as enzymes.

02. Steroid hormones are synthesized in which of the following cellular structures? ***(FCPS January 2024)***

a) Ribosomes
b) Nucleus
c) Smooth endoplasmic reticulum (SER)
d) Rough endoplasmic reticulum (RER)
e) Lysosome

Answer: C

Explanation:

- **Steroid hormones** are lipophilic molecules derived from **cholesterol**.
- The **Smooth ER (SER)** contains enzymes for **cholesterol modification and steroid synthesis**.
- **Ribosomes / RER** are primarily involved in **protein synthesis**.
- **Nucleus** stores DNA and regulates transcription, but does not synthesize steroids.
- **Lysosomes** degrade cellular waste and macromolecules.

03. Which statement correctly describes the Na^+–K^+ pump? ***(FCPS January 2024, July 2023)***

a) Pumps 2 Na^+ out and 3 K^+ in without energy
b) Pumps 3 Na^+ out and 2 K^+ in using energy
c) Moves Na^+ and K^+ passively
d) Does not affect membrane potential
e) Directly provides energy for nerve impulses

Answer: B

Explanation:

Definition: A transport process which pumps 3Na+ from inside to outside through the cell membrane and at the same time pumps 2K+ from the outside to the inside against the concentration gradient with the expenditure of energy is called Na^+K^+ pump.

Significance:

1. It is responsible for **membrane potential**
2. It helps in maintaining the **normal cell volume**
3. It is the basic of **nerve action**
4. It provides **energy for secondary active transport**

04. Following statements are true regarding cell membrane- ***(FCPS January 2022)***

a) Contains many carbohydrates
b) Contains less protein comparatively
c) Same composition throughout life
d) Composition varies in different locations of body
e) Freely permeable to ions, not to proteins

Answer: D

Explanation:

Composition of cell membrane:

- Protein 55%
- Lipid 42%
- Oligosaccharides 3%

(Ref: Ganong/25th/P-34)

05. Function of mitochondria ***(FCPS July 2022)***

a) Packaging of proteins
b) Synthesis of exportable protein
c) Heat production
d) Lipid synthesis
e) Detoxification of drugs

Answer: C

alertness, with epinephrine causing more anxiety in humans. They influence blood glucose by promoting glycogenolysis through β-receptors (via cAMP) and α-receptors (via Ca^{2+}), and modulate insulin and glucagon secretion via both receptor types.

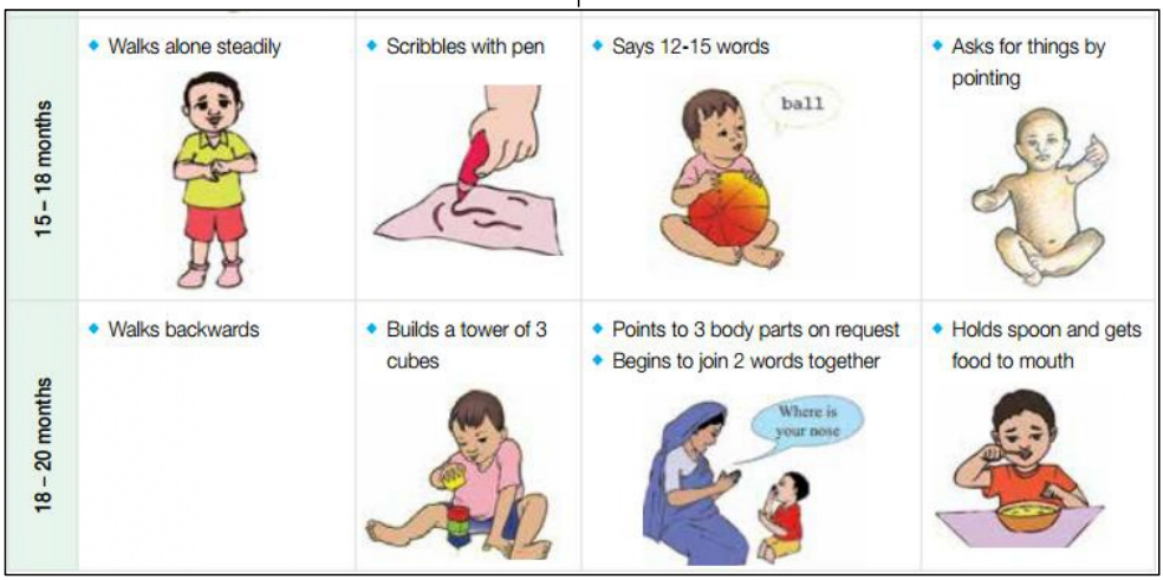
(Ref: Ganong's Review of Medical Physiology, 26th Edition Page 333)

26. Developmental milestones in an 18 months old child- ***(FCPS January 2022)***

a) Points 3 body parts on request
b) Builds a tower of 5 cubes
c) Walks alone
d) Recognizes mother.
e) Rider tricycle

Answer: T F T F F

Explanation:



(Ref: Step on to Paediatrics - Abid Hossain Mollah, 5th Edition 21 page)

27. Deficiency of which hormone causes decreased growth- ***(FCPS January 2022)***

a) Thyroxine
b) IGF-1
c) Cortisol
d) Insulin
e) Epinephrine

Answer: T T F T F

28. Heat losing mechanism in newborns-

a) Evaporation
b) Conduction
c) Convection
d) Shivering
e) Respiration

Answer: T T T F F

Explanation:

Note: Heat losing mechanism in newborns
Evaporation, conduction, convection, radiation

Heat gaining mechanisms: conduction, convection, radiation, non-shivering thermogenesis

29. Disproportionate body growth occurs in ***(FCPS July 2022)***

a) Hypochondroplasia
b) Spinal irradiation
c) Malnutrition
d) Hypothyroidism
e) Turner syndrome

Answer: T T F F F

Explanation:

Disproportionate Short Stature:

- Skeletal dysplasia e.g. achondroplasia
- Rickets
- Untreated congenital hypothyroidism

(Ref: Essentials of Paediatrics - MR Khan, 6th Edition 302 page)

CVS Physiology

SBA

01. Left ventricular workload is higher than that of the right ventricle primarily due to: ***(FCPS January 2025)***

a) Increased preload
b) Increased afterload
c) Increased stroke volume
d) Increased wall thickness
e) Slower contraction

Answer: B

Explanation:

Note on Left Ventricular Workload:

- **Preload:** The degree to which the myocardium is stretched before contraction.
- **Afterload:** The resistance against which blood is ejected from the ventricle.
- The aorta has higher vascular resistance than the pulmonary artery → afterload is greater for the left ventricle.
- As a result, the left ventricle must pump more vigorously than the right ventricle.
- To handle this higher workload, the left ventricular wall is thicker.

(Ref: Ganong, 26th edition, Chapter 30-2No. MCQ.)

02. Which of the following mechanisms is primarily responsible for long-term regulation of blood pressure? ***(FCPS January 2024)***

a) Baroreceptor feedback mechanism
b) Chemoreceptor feedback mechanism
c) Renin-angiotensin vasoconstrictor mechanism
d) Capillary fluid shift mechanism
e) Renal body fluid mechanism

Answer: E

Explanation:

A, B – Short term regulation
C, D – Intermediate term regulation

03. A baby with Tetralogy of Fallot (TOF) develops cyanosis. Which of the following components is primarily responsible for this event? ***(FCPS January 2024)***

a) Left ventricular hypertrophy (LVH)
b) Right ventricular hypertrophy (RVH)
c) Coarctation of the aorta
d) Infundibular stenosis
e) Ventricular septal defect (VSD)

Answer: D

Explanation:

➢ **Tetralogy of Fallot (TOF)** consists of:

1. Ventricular septal defect (VSD)
2. Pulmonary (infundibular) stenosis
3. Right ventricular hypertrophy (RVH)
4. Overriding aorta

Haemodynamics:

Owing to right ventricular outflow obstruction, during ventricular systole, deoxygenated blood from the right ventricle shunts through the VSD into the left ventricle, bypassing the lungs. This blood mixes with the oxygenated blood in the left ventricle, and the mixed blood is then ejected through the overriding aorta to supply the rest of the body.

(Ref: Step on to Paediatrics - Abid Hossain Mollah, 5th Edition Page 184)

04. Which of the following mechanisms is responsible for maintaining blood pressure when a person moves from sitting to standing? ***(FCPS July 2023)***

a) Activation of renin–angiotensin–aldosterone system (RAAS)
b) Increased secretion of antidiuretic hormone (ADH)
c) Baroreceptor-mediated increase in sympathetic activity
d) Local autoregulation of blood flow
e) Release of atrial natriuretic peptide (ANP)

Answer: C

Pharmacology

SBA

01. Which of the following is the drug of choice for neonatal convulsions? *(FCPS January 2025)*

a) Sodium valproate
b) Phenobarbital
c) Levetiracetam
d) Fosphenytoin
e) Phenytoin

Answer: B

Explanation:

- Phenobarbital is the first-line drug for neonatal seizures due to its efficacy and safety profile.
- Sodium valproate and levetiracetam are used in older children or refractory cases.
- Fosphenytoin and phenytoin are alternatives if seizures are resistant to phenobarbital.

(Ref: Gomella, 8th/P-766)

02. Gene Xpert primarily detects resistance to which of the following drugs? *(FCPS January 2024)*

a) Isoniazid
b) Rifampicin
c) Pyrazinamide
d) Ethambutol
e) Streptomycin

Answer: B

Explanation:

- **Gene Xpert MTB/RIF** is a molecular test that detects **M. tuberculosis DNA** and **mutations in the rpoB gene** associated with **rifampicin resistance**.
- Rifampicin resistance is a key marker of **multidrug-resistant TB (MDR-TB)**.

03. The action of ACE inhibitors is most closely related to the effect of which hormone? *(FCPS July 2023)*

a) Aldosterone
b) Thyroid hormone
c) Insulin
d) Cortisol
e) Growth hormone

Answer: A

Explanation:

ACE inhibitors block the conversion of angiotensin I to angiotensin II. Angiotensin II normally stimulates aldosterone secretion from the adrenal cortex. By reducing aldosterone levels, ACE inhibitors decrease sodium and water retention, contributing to their antihypertensive effect. This mechanism directly links ACE inhibitors to aldosterone, not to thyroid hormone or other hormones listed.

04. A 6-month-old infant develops diarrhea and is given a medication from a pharmacy. Two days after starting the drug, the infant presents with a bulging anterior fontanelle. Which of the following medications is the most likely cause? *(FCPS July 2023)*

a) Ciprofloxacin
b) Tetracycline
c) Azithromycin
d) Erythromycin
e) Metronidazole

Answer: B

Explanation:

- **Tetracyclines** are contraindicated in children <8 years due to risks of:
  - ✓ Tooth discoloration
  - ✓ **Intracranial hypertension (pseudotumor cerebri)**, which can present as **bulging anterior fontanelle** in infants.

05. How benzodiazepine relieve anxiety- *(FCPS January 2023)*

a) Stimulate dopamine activity in brain
b) Inhibit dopamine activity in brain
c) Potentiate GABA activity throughout CNS
d) Increase nor epinephrine action on hypothalamus.

Answer: C

SBA Practice Questions

01. Drug causing enzyme induction?
a) Na-valproate
b) OCP
c) NSAIDs
d) Phenytoin
e) Omeprazole
Answer: D

02. Drug that can cross blood brain barrier?
a) Carbidopa
b) Neostigmine
c) Phenylbutazone
d) Dopamine
e) Physostigmine
Answer: E

03. Plasma half-life does not give information about?
a) Duration of action.
b) Amount to be administered
c) Frequency of adminstered
d) Mechanism of drug action
e) Management of drug overdose.
Answer: D

04. Which is not a teratogenic drug?
a) Thalidomide
b) Phenytoin
c) Na-valproate
d) Alpha methyl dopa
e) Chloramphenicol
Answer: D

05. Drug used for cytoprotective in PUD?
a) Ranitidine
b) Piranzipine
c) Sucralfate
d) Sodium bicarbonate
e) Amoxicillin
Answer: C

06. Anti TB that causes optic neuritis?
a) Ethambutol
b) Pyrazinamide
c) Streptomycin
d) Rifampicin
e) Amikacin
Answer: A

07. Non-sedative Anti histamine is-
a) Loratidine
b) Carbinoxamine
c) Diphenhydramine
d) Promethazine
e) Cyclizine
Answer: A

08. Drug acts by inhibition of 30 s ribosomal unit?
a) Chloramphenicol
b) Sulfonamide
c) Tetracycline
d) Cephalosporin
e) Trimethoprim
Answer: C

09. Antibiotics acts by cell wall synthesis?
a) Aminoglycoside
b) Tetracycline
c) Cycloserine
d) Sulfonamide
e) Metronidazole
Answer: C

10. Ethacrynic Acid acts through?
a) Inhibition of carbonic Anhydrase in PCT
b) Inhibition of Na+ k+ /2cl- co transporter in thick ascending limb of loop of henle
c) Inhibition of Na + cl- co transporter in DCT
d) Block Na + channel
e) Block Aldosterone receptor in collecting tubule.
Answer: B

Bacteriology

SBA

01. Endotoxin producing bacteria- *(FCPS January 2025)*

a) B. Pertussis
b) N. meningitidis
c) Staphylococcus
d) Corynebacterium
e) Clostridium

Answer: B

Explanation:

- Endotoxins are lipopolysaccharide (LPS) components of the outer membrane of Gram-negative bacteria.
- *N. meningitidis* is Gram-negative, hence produces endotoxin (LPS).

(Ref: LANGE Review of Medical Microbiology and Immunology, 15th Edition Page 44)

02. Common site of extra pulmonary TB? *(FCPS-January 2023)*

a) Cervical lymph node
b) Peritoneum
c) Meninges
d) Vertebrae
e) Genitourinary TB

Answer: A

Explanation:

Magnitude of extra-pulmonary TB

- More common than adults
- TB lymphadenopathy: Most common
- More vulnerable to develop severe form of TB e.g. TBM/disseminated TB

Genitourinary TB: Less or rare

(Ref: Step on to Paediatrics - Abid Hossain Mollah, 5th Edition Page 31)

03. Prolong cause of morbidity in acute rheumatic fever- *(FCPS January 2022)*

a) Sydenhams chorea
b) Carditis
c) Erythema nodosum
d) Subcutaneous nodule
e) Polyarthritis

Answer: B

Explanation:

Carditis / Pancarditis:

Carditis and resultant chronic rheumatic heart disease are the most serious manifestations of acute RF and account for essentially all the associated morbidity and mortality.

Occurs in **50–60% of patients** with rheumatic fever.

Characterized by involvement of all three layers of the heart:

- Endocardium
- Myocardium
- Pericardium

Features of Pancarditis

1. Endocarditis

- Results in valvular involvement (valvulitis)
- Produces murmurs

2. Myocarditis

- Clinical signs: tachycardia, conduction defects, cardiomegaly

3. Pericarditis

- Clinical signs: pericardial rub, pericardial effusion

Note:

- Endocarditis is universal in rheumatic carditis.
- Myocarditis and pericarditis without endocarditis are extremely rare.

Additional Notes

Revised Jones Criteria 2015:

- ✓ Subclinical carditis (valvulitis detected on echocardiogram without audible murmur) is now recognized as a major criterion.
- ✓ Most commonly, mitral valve is involved.
- ✓ Occasionally, aortic valve may also be affected.
- ✓ Isolated aortic or right-sided valvular involvement is uncommon.

Common Murmurs in Rheumatic Carditis

- Mitral regurgitation: High-pitched apical holosystolic murmur radiating to axilla
- Relative mitral stenosis: Apical mid-diastolic murmur

MCQ

17. Which of the following are involved in killing microbes during phagocytosis? *(FCPS July 2024)*

a) Hydrogen peroxide (H_2O_2)
b) Lysosomal enzymes
c) Lecithinase
d) Superoxide radicals
e) Nitric oxide (NO)

Answer: T T F T T

Explanation:

a. H_2O_2 – True: Produced during oxidative burst to kill microbes.
b. Lysosomal enzymes – True: Hydrolytic enzymes digest engulfed pathogens.
c. Lecithinase – False: A bacterial toxin, not part of phagocytic killing.
d. Superoxide radicals – True: Generated in the oxidative burst, contributing to microbial killing.
e. Nitric oxide – True: Produced by inducible nitric oxide synthase in phagocytes; has microbicidal activity.

18. Monoclonal antibody - *(FCPS July 2024)*

a) Highly specific
b) HLA typing
c) Produced using recombinant DNA technology
d) Used in cancer therapy
e) Used in autoimmune disease therapy

Answer: T T T T T

Explanation:

Monoclonal antibodies are **highly specific, versatile tools** used in **diagnostics (HLA typing), therapeutics (cancer, autoimmune diseases), and research**. Advances in recombinant DNA technology have further improved their safety and efficacy.

19. Mediator of fever - *(FCPS July 2024)*

a) IL1
b) PG
c) Bradykinin
d) TNF-α
e) Histamine

Answer: T T F T F

Explanation: Fever is mediated by **endogenous pyrogens (IL-1, TNF-α)**, which stimulate **PGE_2 production in the hypothalamus**, raising body temperature.

(Ref: Robbins and Cotran Pathologic Basis of Disease, 10th edition)

20. Acute phage reactant - *(FCPS July 2024)*

a) CRP
b) Fibrin
c) Procalcitonin
d) Gamma globulin
e) Ferritin

Answer: T T T F T

21. Cell involved in destruction of intracellular pathogens? *(FCPS-January 2023)*

a) Macrophage
b) NK cell
c) B cell
d) Helper T cell
e) Cytotoxic T cell

Answer: T T F F T

22. ANA positive in- *(FCPS January 2022)*

a) SLE
b) RF
c) RA
d) Scleroderma
e) Sjogren syndrome

Answer: T F T T T

23. Examples of type II hypersensitivity- *(FCPS January 2022)*

a) Rheumatic fever
b) PAN
c) Graves disease
d) Tuberculin test
e) Contact dermatitis

Answer: T F T F F

24. Properties of NK cells- *(FCPS January 2022)*

a) Participate in innate immunity
b) Has memory cell
c) Produced in bone marrow
d) Can attack viruses
e) Produce gamma INF

Answer: T F T T T

Explanation:

Main commonent of innate & acquired immunity:

	Humoral immunity	Cell mediated immunity
Innate	Complement, Neurophils Eosinophil. Basophil. Mast cell	Macrophages, Dendritic cell, NK cells
Acquired	B cells, Plasma cells	Helper T cells, Cytotoxic T cells

Clinical Paediatrics

SBA

01. A boy presented with periorbital swelling, on examination- BP 140/100, H/O skin infection 2 weeks back, what findings you want to see for diagnosis? *(FCPS January 2022)*

a) RBC cast in urine
b) Decreased C3, C4
c) 24-hour UTP
d) S. creatinine
e) Blood urea

Answer: A

Explanation:

Diagnosis

- Urinalysis: RBC, RBC casts, proteinuria
- Complete blood count: Polymorphonuclear leukocytosis, normocytic normochromic anemia
- Serum C3 level is reduced
- Evidence of streptococcal infection: Positive throat swab culture, raised ASO titer, positive streptozyme test.
- Renal biopsy: Usually not required, may be done in atypical presentation, e.g. nephrotic syndrome, ARF, absence of evidence of streptococcal infection, absence of hypocomplementemia, or the persistence of marked hematuria or proteinuria or both, or a low C3 level for >3 months after onset

(Ref: Essentials of Paediatrics, MR Khan, 5th Edition.)

02. A 3 years old boy presented with generalized swelling with massive proteinuria, pathogenesis responsible for this condition- *(FCPS January 2022)*

a) Effacement of foot processes of podocytes
b) Dislodgement of subendothelium and mesangial deposition
c) Mesangial proliferation
d) Decreased permeability of glomerular basement membrane
e) Increased plasma colloid osmotic pressure

Answer: A

Explanation:

Pathogenesis

- Damage of the podocytes (effacement of foot process)
- Increases permeability of GFB
- Massive passage of albumin across GFB into the urinary space

This massive albumin loss in urine (Albuminuria) gives rise to hypoalbuminaemia with fall of plasma colloidal osmotic pressure. As a result, fluid shifts from plasma to interstitial space, which results in:

- Generalized oedema
- Accumulation of fluid in serous cavities giving rise to ascites, pleural & pericardial effusion
- Contraction of intravascular volume (Haemoconcentration)

(Ref: Step on to Paediatrics, Abid Hossain Mollah, 5th Edition, 239 page.)

03. Myenteric and Meissner plexus absent in which disease- *(FCPS January 2022)*

a) Achalasia cardia
b) GERD
c) Congenital megacolon
d) Infantile hypertrophic pyloric stenosis
e) Paralytic ileus

Answer: C

Explanation:

Pathogenesis

HD (Hirshpung disease or, Congenital Megacolon) results from an absence of ganglion cells in the mucosal (Meissner plexus) and muscle layers (Auerbach plexus) of large gut. The absence of ganglion cells results in failure of the colonic muscles to relax in front of an advancing bolus and give rise to colonic obstruction.

(Ref: Step on to Paediatrics, Abid Hossain Mollah, 5th Ed./P-325)

Explanation:

Natural history of APSGN:

- BP returns normal - within 2 Weeks. (4-6 weeks)
- Oliguria resolves - within 2 weeks.
- Azotemia - within 2 weeks.
- Gross hematuria resolves by 3 to 4 weeks.
- Massive proteinuria resolves by < 2 weeks.
- Moderate proteinuria resolves by < 6 months.
- Microscopic hematuria resolves by <1 year. (1-2 years Nelson)
- Compliment level normalizes by < 3 month (6-8 weeks Nelson)
- CKD develops in 1% of APSGN.

24. A 2 years old child comes with H/O recurrent respiratory tract infection. On examination there was systolic murmur. The 2nd heart sound was splitted. What is the diagnosis? *(FCPS July 2019)*

a) ASD
b) PDA
c) TOF
d) Atrial stenosis
e) Pulmonary stenosis

Answer: A

Explanation:

- Inspection: Mild precordial bulge.
- Palpation
- Apex test may' be shifted to let
- P2 may be palpable
- Left parasternal heave may be present
- Auscultation
- S1 is normal
- S2 is widely split and fixed pulmonary area
- Added sound. An ejection systolic murmur (grade best heard at the upper left sternal edge (in pulmonary area). This is caused by increased flow across the pulmonary valve, not due to flow across ASD

25. A 10 days old child comes with fair skin, hyper reflex, & seizure with phenylalanine excess. Which is the most important enzyme deficient in this case *(FCPS January 2018)*

a) Phenylalanine reductase
b) Phenylalanine hydroxylase
c) Phenylalanine carboxylase
d) Folate dehydrogenase
e) Uridyl transferase

Answer: B

Explanation:

Phenylketonuria (PKU) is an autosomal recessive metabolic genetic disorder caused by an error in the genetic code for the hepatic enzyme phenylalanine hydroxylase (PAH), rendering it nonfunctional. This enzyme is necessary to metabolize the amino acid phenylalanine (Phe) to tyrosine. When PAH enzymatic activity is reduced, phenylalanine accumulates and is converted to phenylpyruvate (a phenylketone), which is detected in the urine.

If a child is not screened during the routine newborn screening test (typically performed 6–14 days after birth, using samples drawn by neonatal heel prick), the disease may later present clinically with seizures, albinism (excessively fair hair and skin), and a "musty odor" of the baby's sweat and urine (due to phenylacetate, one of the ketones produced).

Untreated children are normal at birth but fail to attain early developmental milestones, develop microcephaly, and show progressive impairment of cerebral function. Hyperactivity, EEG abnormalities, seizures, and severe learning disabilities are major clinical problems later in life.

A characteristic "musty" or "mousy" odor of the skin, hair, sweat, and urine (due to phenylacetate accumulation), along with a tendency to hypopigmentation and eczema, are also observed.

(Ref: Essentials of Paediatrics, MR Khan, 5th Edition)

SBA Practice Questions

01. Most common cause of under 5 mortality in Bangladesh is
a) Malaria
b) Measles
c) Accidents
d) Birth Injury
e) Pneumonia
Answer: E

02. "Reduced Child Mortality" is included in MDG and its no as
a) Goal 3
b) Goal 4
c) Goal 5
d) Goal 6
e) Goal 1
Answer: B

03. Lymphoid tissue growth is completed by the age of -
a) 3 years
b) 14 years
c) 18 years
d) 8 years
e) 12 years
Answer: D

04. A child's height is doubled by the age of –
a) 3 years
b) 4 years
c) 5 years
d) 6 years
e) 2 years
Answer: B

05. By the age of 8 months a child can do all, except for –
a) Transfer object from one hand to other
b) Tries to feed him
c) Turns to soft sound
d) Sit with support
e) Palmar grasp is achieved
Answer: D

06. Osseous centre present at birth –
a) Cuboid
b) Hamate
c) Lunate
d) Scaphoid
e) Pisiform
Answer: A

07. Which one of the following is true?
a) A child can draw circle at 2 years
b) A child can draw triangle at 3 years
c) A child can draw cross sign at 3 years
d) A child can draw diamond at 5 years
e) A child can draw square at 4 years
Answer: E

08. Proper attachment of breast feeding includes-
a) Baby's body fully supported
b) Body close to mother
c) Baby's chin touching the breast
d) Babys head and body remains straight
e) Babys nose opposite to nipple
Answer: C

09. A healthy term neonate does not have –
a) Weight 3.5 kg
b) Respiratory rate 40/min
c) Heart rate 120/min
d) Sleep around 18 hours/day
e) OFC 37 cm
Answer: E

10. Which one is false?
a) Moro reflex appears at birth
b) Rooting reflex disappears at 3-4 months
c) Steeping reflex disappears at 5-6 months
d) Tonic neck reflex appears at 2 months
e) Parachute reflex persists for long
Answer: C

11. Which of the Carpal bone's osseous center appears last?
a) Scaphoid
b) Lunate
c) Triquetral
d) Pisiform
e) Capitate
Answer: D