

INI CET Paediatrics

Sample Paper – 4

Duration: 14 Minutes

Maximum Marks: 15

Instructions

- This paper contains **15** Multiple Choice Questions (Single Best Response), modelled on the Paediatrics content of **INI CET** (Institutes of National Importance Combined Entrance Test) conducted by AI-IMS New Delhi.
- The **15-question** length matches the number of Paediatrics items you actually meet in the real 200-question paper.
- Each correct answer carries **+1 mark**. There is **negative marking of one-third (0.33) mark** for every incorrect answer; unattempted questions carry no penalty.
- Every question has **exactly one best answer**. Choose the single most appropriate option.
- Attempt this practice paper in one timed sitting of about **14 minutes**, the pace the real computer-based test demands.

Neonatology

Q1. A formula-fed preterm neonate born at 29 weeks develops abdominal distension, bloody stools and feed intolerance on day 8. An abdominal X-ray shows gas within the bowel wall (pneumatosis intestinalis). The most likely diagnosis is:

- (A) Hirschsprung disease
- (B) Necrotising enterocolitis
- (C) Duodenal atresia
- (D) Meconium ileus

Q2. Retinopathy of prematurity is a proliferative retinal vascular disorder of



preterm infants. Which single factor is most strongly implicated in its development?

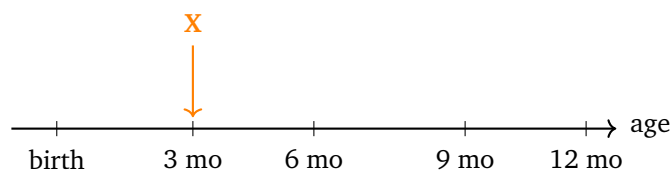
- (A) Maternal hypertension
- (B) Delayed cord clamping
- (C) Unmonitored supplemental oxygen therapy
- (D) Early breastfeeding

Q3. The WHO 'warm chain' is a set of measures to prevent neonatal hypothermia from birth onward. Which of the following is the most appropriate step immediately after delivery of a healthy term baby?

- (A) Bathe the baby at once to clean off vernix
- (B) Dry the baby and place it in skin-to-skin contact on the mother's chest
- (C) Nurse the naked baby under a ceiling fan
- (D) Delay the first feed until 24 hours of age

Growth, Development and Nutrition

Q4. On the gross-motor timeline below, the arrow X marks the age by which a normal infant achieves *steady head control* (neck holding) when held upright. That age is:



- (A) About 3 months
- (B) About 6 months
- (C) About 9 months
- (D) About 12 months

Q5. An 18-month-old presents with gross muscle wasting, loss of subcutaneous fat, an 'old-man' wrinkled face and prominent ribs, but **no** oedema. Serum albumin is near normal. This picture is the hallmark of:



- (A) Kwashiorkor
- (B) Marasmus
- (C) Nephrotic syndrome
- (D) Congestive cardiac failure

Q6. Colostrum, the first milk secreted in the initial few days after delivery, is strongly recommended for every newborn mainly because it:

- (A) Is low in protein and antibodies
- (B) Should be discarded as it is 'dirty' milk
- (C) Contains mostly fat and few immune factors
- (D) Is rich in secretory IgA and other protective factors that boost immunity

Immunisation and Infectious Disease

Q7. The rotavirus vaccine included in India's Universal Immunisation Programme is given orally in infancy chiefly to prevent:

- (A) Neonatal tetanus
- (B) Whooping cough
- (C) Tuberculous meningitis
- (D) Severe rotavirus gastroenteritis and its dehydrating diarrhoea

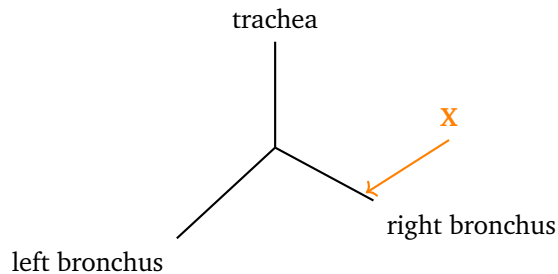
Q8. A 12-year-old boy has bilateral tender parotid swelling and fever from mumps, and now develops painful swelling of one testis. This recognised complication of mumps is:

- (A) Acute glomerulonephritis
- (B) Orchitis
- (C) Rheumatic carditis
- (D) Osteomyelitis

Respiratory and Cardiovascular Paediatrics

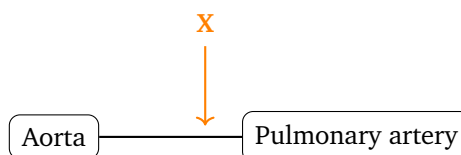


Q9. A toddler chokes on a peanut and later develops localised wheeze and reduced air entry on one side. In the airway schematic below, the arrow **X** marks the site into which an aspirated foreign body most commonly lodges, namely the:



- (A) Right main bronchus
- (B) Left main bronchus
- (C) Cervical oesophagus
- (D) Larynx above the cords

Q10. In the aortopulmonary schematic below, the arrow **X** marks a persistent vessel between the aorta and pulmonary artery that produces a continuous 'machinery' murmur below the left clavicle. This acyanotic lesion is:



- (A) Patent ductus arteriosus
- (B) Atrial septal defect
- (C) Pulmonary stenosis
- (D) Coarctation of the aorta

Q11. A child born with a large ventricular septal defect, untreated for years, develops progressive pulmonary hypertension until the shunt reverses to right-to-left and the child turns cyanotic. This end-stage physiology is called:



- (A) Rheumatic mitral stenosis
- (B) Infective endocarditis
- (C) Cardiac tamponade
- (D) Eisenmenger syndrome

Haematology, Genetics and Systemic Disease

- Q12.** A 5-year-old with known homozygous sickle cell disease presents with sudden severe pain in the back and limbs after a febrile illness. This acute episode, caused by sickled red cells occluding small blood vessels, is a:
- (A) Megaloblastic crisis
 - (B) Simple iron deficiency
 - (C) Vaso-occlusive (painful) crisis
 - (D) Physiological growth spurt
- Q13.** A toddler develops acute kidney injury, microangiopathic haemolytic anaemia and thrombocytopenia about a week after bloody diarrhoea. This classic triad defines:
- (A) Henoch-Schonlein purpura
 - (B) Minimal change nephrotic syndrome
 - (C) Haemolytic uraemic syndrome
 - (D) Acute post-streptococcal glomerulonephritis

Emergency, Fluids and Electrolytes

- Q14.** A child collapses with stridor, urticaria and hypotension minutes after a bee sting. The single most important first-line drug, and its correct route, is:
- (A) Intramuscular adrenaline into the anterolateral thigh
 - (B) Intravenous hydrocortisone as the first drug
 - (C) Oral antihistamine tablet



(D) Nebulised salbutamol alone

Q15. Using the Holliday-Segar rule, the daily maintenance fluid requirement for a 24 kg child is calculated as 100 mL/kg for the first 10 kg, 50 mL/kg for the next 10 kg and 20 mL/kg for each kilogram beyond 20. The total is:

- (A) 1200 mL per day
- (B) 2400 mL per day
- (C) 1580 mL per day
- (D) 960 mL per day



Detailed Solutions**Q1.****Solution**

Concept – necrotising enterocolitis (NEC): NEC is the commonest life-threatening gastrointestinal emergency of the preterm newborn.

Step 1 – match the clues: A preterm, formula-fed neonate with abdominal distension, bloody stools and feed intolerance in the second week is the classic setting for **necrotising enterocolitis**.

Step 2 – the confirming sign: Gas within the bowel wall, called pneumatosis intestinalis, on the abdominal X-ray is the radiological hallmark of NEC.

Why the other options are wrong:

- A, Hirschsprung disease: presents with delayed passage of meconium and constipation, not pneumatosis.
- C, duodenal atresia: gives a ‘double-bubble’ sign and bilious vomiting from birth, not bowel-wall gas.
- D, meconium ileus: causes distal ileal obstruction, often linked to cystic fibrosis, without pneumatosis.

Final Answer: Necrotising enterocolitis ⇒ **B**

Answer: (B) [Go Back to Q1](#)

Q2.**Solution**

Concept – retinopathy of prematurity (ROP): ROP is abnormal retinal vessel growth in preterm babies, and oxygen is the key modifiable trigger.

Step 1 – name the main factor: **Unmonitored supplemental oxygen therapy** (hyperoxia) is the factor most strongly implicated, along with prematurity and low birth weight.

Step 2 – the mechanism: High oxygen first suppresses normal retinal vessel growth; the later relative hypoxia drives disordered neovascularisation that can lead to retinal detachment, so at-risk preterms need careful oxygen targeting and scheduled retinal screening.

Why the other options are wrong:

- A, maternal hypertension: not a direct cause of ROP.



- B, delayed cord clamping: is beneficial and not a cause of ROP.
- D, early breastfeeding: is protective and does not cause ROP.

Final Answer: Unmonitored supplemental oxygen ⇒

Answer: (C) [Go Back to Q2](#)

Q3.

Solution

Concept – the warm chain and neonatal hypothermia: Newborns lose heat rapidly, so the WHO warm chain aims to keep them normothermic from the moment of birth.

Step 1 – the correct first step: Immediately after delivery a healthy term baby should be **dried and placed skin-to-skin** on the mother's chest, then covered, which conserves heat and encourages early breastfeeding.

Step 2 – why: Skin-to-skin contact uses maternal warmth to prevent hypothermia, which in a neonate can cause hypoglycaemia, acidosis and increased mortality.

Why the other options are wrong:

- A, immediate bathing: removes protective vernix and causes rapid evaporative heat loss; bathing is delayed.
- C, naked baby under a fan: promotes convective heat loss and hypothermia.
- D, delaying the feed: early feeding is encouraged; delay risks hypoglycaemia.

Final Answer: Dry and place skin-to-skin ⇒

Answer: (B) [Go Back to Q3](#)

Q4.

Solution

Concept – gross-motor milestone of head control: Steady neck holding is one of the earliest gross-motor milestones and follows a fixed age.

Step 1 – read the timeline: The arrow X points to the 3-month mark on the age axis.

Step 2 – match the milestone: A normal infant achieves steady head control (neck holding) by about **3 months** of age.

Why the other options are wrong:



- B, 6 months: by now the baby sits with support and rolls over, well past neck holding.
- C, 9 months: the age of crawling and standing with support.
- D, 12 months: the age of first walking and single words, far later than head control.

Final Answer: About 3 months ⇒ A

Answer: (A) [Go Back to Q4](#)

Q5.

Solution

Concept – marasmus as severe wasting: Marasmus is severe protein-energy malnutrition from a total calorie deficit, and the absence of oedema is its key feature.

Step 1 – read the picture: Gross muscle wasting, loss of subcutaneous fat, an ‘old-man’ wrinkled face and prominent ribs *without* oedema are the hallmark of **marasmus**.

Step 2 – the discriminator: The near-normal albumin and lack of pitting oedema separate marasmus from kwashiorkor, in which oedema and hypoalbuminaemia dominate.

Why the other options are wrong:

- A, kwashiorkor: has pitting oedema, a distended abdomen and low albumin, all absent here.
- C, nephrotic syndrome: causes generalised oedema and heavy proteinuria, not pure wasting.
- D, congestive cardiac failure: presents with oedema and hepatomegaly, not marasmic wasting.

Final Answer: Marasmus ⇒ B

Answer: (B) [Go Back to Q5](#)



Q6.

Solution

Concept – the value of colostrum: Colostrum is the thick yellow first milk of the initial few days and is a rich source of immune protection.

Step 1 – the key property: Colostrum is **rich in secretory IgA** and other protective factors (leucocytes, lactoferrin, lysozyme) that boost the newborn's immunity.

Step 2 – why: These factors coat the gut mucosa and provide passive immunity against infection; colostrum is also high in protein and vitamin A and acts as a natural laxative, so it must never be discarded.

Why the other options are wrong:

- A, low in protein and antibodies: the opposite is true; colostrum is protein and antibody rich.
- B, discard as dirty milk: a harmful myth; colostrum is highly beneficial.
- C, mostly fat and few immune factors: mature milk has more fat; colostrum is rich in immune factors.

Final Answer: Rich in secretory IgA and protective factors ⇒ D

Answer: (D) [Go Back to Q6](#)

Q7.

Solution

Concept – what the rotavirus vaccine prevents: The oral rotavirus vaccine targets the leading viral cause of severe infantile diarrhoea.

Step 1 – name the target disease: Rotavirus vaccine prevents **severe rotavirus gastroenteritis** and its dehydrating watery diarrhoea, the commonest cause of severe diarrhoeal death in young children.

Step 2 – the schedule: In the UIP it is given orally in three doses at 6, 10 and 14 weeks along with the other primary vaccines.

Why the other options are wrong:

- A, neonatal tetanus: prevented by maternal tetanus toxoid, not rotavirus vaccine.
- B, whooping cough: prevented by the pertussis component of the pentavalent/DPT vaccine.
- C, tuberculous meningitis: prevented by BCG, not rotavirus vaccine.



Final Answer: Severe rotavirus gastroenteritis ⇒ D

Answer: (D) [Go Back to Q7](#)

Q8.

Solution

Concept – complications of mumps: Mumps is a paramyxovirus causing parotitis, and its complications reflect spread to other glandular and nervous tissue.

Step 1 – name the complication: Painful swelling of a testis in a post-pubertal boy with mumps is **orchitis**, a well-recognised complication (aseptic meningitis is another).

Step 2 – why it matters: Mumps orchitis is usually unilateral and may rarely reduce fertility; it is one reason MMR vaccination is important.

Why the other options are wrong:

- A, acute glomerulonephritis: follows streptococcal infection, not mumps.
- C, rheumatic carditis: a complication of rheumatic fever after streptococcal sore throat.
- D, osteomyelitis: a bacterial bone infection, unrelated to mumps.

Final Answer: Orchitis ⇒ B

Answer: (B) [Go Back to Q8](#)

Q9.

Solution

Concept – site of foreign-body aspiration: The anatomy of the bronchial tree decides where an inhaled object usually lodges.

Step 1 – read the schematic: The arrow X points to the **right main bronchus**, which is wider, shorter and more vertical than the left.

Step 2 – apply the anatomy: Because of this more vertical alignment with the trachea, an aspirated foreign body most commonly lodges in the right main bronchus, causing localised wheeze and reduced air entry on that side.

Why the other options are wrong:

- B, left main bronchus: is narrower and more horizontal, so it is a less common site.



- C, cervical oesophagus: this is the food passage, not the airway.
- D, larynx above the cords: large objects may impact here and cause complete choking, but small aspirated items pass down to the bronchus.

Final Answer: Right main bronchus $\Rightarrow$ A

Answer: (A) [Go Back to Q9](#)

Q10.

Solution

Concept – patent ductus arteriosus (PDA): The ductus arteriosus normally closes after birth; when it stays open it links the aorta and pulmonary artery.

Step 1 – read the schematic: The arrow X marks the persistent vessel between the aorta and pulmonary artery, which is a **patent ductus arteriosus**.

Step 2 – the clinical sign: Continuous flow through this shunt produces the classic continuous ‘machinery’ murmur best heard below the left clavicle.

Why the other options are wrong:

- B, atrial septal defect: gives fixed splitting of the second heart sound, not a continuous murmur.
- C, pulmonary stenosis: causes an ejection systolic murmur, not a machinery murmur.
- D, coarctation of the aorta: causes radiofemoral delay and upper-limb hypertension, not this murmur.

Final Answer: Patent ductus arteriosus $\Rightarrow$ A

Answer: (A) [Go Back to Q10](#)

Q11.

Solution

Concept – Eisenmenger syndrome: A long-standing left-to-right shunt can drive pulmonary hypertension until the shunt reverses.

Step 1 – name the physiology: Progressive pulmonary hypertension from a large uncorrected VSD eventually reverses the shunt to right-to-left, producing cyanosis; this is **Eisenmenger syndrome**.

Step 2 – why it matters: Once Eisenmenger physiology develops the defect can no longer be safely closed, so early correction of large shunts is essential.



Why the other options are wrong:

- A, rheumatic mitral stenosis: an acquired valve disease from rheumatic fever, not shunt reversal.
- B, infective endocarditis: infection of the endocardium, a different complication.
- C, cardiac tamponade: pericardial fluid compressing the heart, unrelated to shunt reversal.

Final Answer: Eisenmenger syndrome $\Rightarrow$

Answer: (D) [Go Back to Q11](#)

Q12.

Solution

Concept – vaso-occlusive crisis in sickle cell disease: Sickled red cells can block small vessels and cause sudden severe pain.

Step 1 – name the event: Sudden severe bone and limb pain in a child with homozygous sickle cell disease, often triggered by infection, dehydration or cold, is a **vaso-occlusive (painful) crisis**.

Step 2 – the mechanism: Deoxygenation makes the abnormal haemoglobin S polymerise, distorting red cells into rigid sickle shapes that occlude the microcirculation and cause ischaemic pain.

Why the other options are wrong:

- A, megaloblastic crisis: results from folate or B12 lack, not acute vessel occlusion.
- B, simple iron deficiency: causes chronic tiredness, not sudden painful crises.
- D, physiological growth spurt: a normal event, not a cause of acute severe pain.

Final Answer: Vaso-occlusive (painful) crisis $\Rightarrow$

Answer: (C) [Go Back to Q12](#)



Q13.

Solution

Concept – the triad of haemolytic uraemic syndrome (HUS): HUS classically follows a diarrhoeal illness and is defined by a three-part triad.

Step 1 – name the triad: Acute kidney injury, microangiopathic haemolytic anaemia and thrombocytopenia together define **haemolytic uraemic syndrome**.

Step 2 – the trigger: Typical HUS follows bloody diarrhoea caused by Shiga-toxin-producing *E. coli*, whose toxin damages the endothelium of small vessels, especially in the kidney.

Why the other options are wrong:

- A, Henoch-Schonlein purpura: gives a palpable purpuric rash, arthritis and abdominal pain, not this triad.
- B, minimal change nephrotic syndrome: causes heavy proteinuria and oedema, not haemolysis and thrombocytopenia.
- D, post-streptococcal glomerulonephritis: follows a streptococcal infection with haematuria and hypertension, not diarrhoea-linked haemolysis.

Final Answer: Haemolytic uraemic syndrome $\Rightarrow$ C

Answer: (C) [Go Back to Q13](#)

Q14.

Solution

Concept – first-line treatment of anaphylaxis: Anaphylaxis is a life-threatening systemic allergic reaction needing immediate adrenaline.

Step 1 – name the drug and route: The single most important first-line treatment is **intramuscular adrenaline** injected into the anterolateral thigh (vastus lateralis), given at once.

Step 2 – why: Intramuscular adrenaline reverses bronchospasm, laryngeal oedema and hypotension rapidly; the thigh route gives fast, reliable absorption, and the paediatric dose is 0.01 mg/kg of 1:1000 solution.

Why the other options are wrong:

- B, IV hydrocortisone first: steroids are only a slow second-line adjunct, not the first drug.
- C, oral antihistamine: too slow and cannot treat airway or circulatory collapse.



- D, nebulised salbutamol alone: helps bronchospasm but does not reverse the reaction; adrenaline is essential.

Final Answer: Intramuscular adrenaline into the thigh $\Rightarrow$ A

Answer: (A) [Go Back to Q14](#)

Q15.

Solution

Concept – Holliday-Segar maintenance fluid rule: This weight-based formula gives a child's 24-hour maintenance fluid volume.

Step 1 – apply the tiers: First 10 kg: $10 \times 100 = 1000$ mL. Next 10 kg: $10 \times 50 = 500$ mL. Remaining $24 - 20 = 4$ kg: $4 \times 20 = 80$ mL.

Step 2 – add the tiers: Total = $1000 + 500 + 80 = 1580$ mL per day.

Why the other options are wrong:

- A, 1200 mL: undercounts by ignoring the 20 mL/kg tier beyond 20 kg.
- B, 2400 mL: wrongly applies 100 mL/kg to the whole weight.
- D, 960 mL: applies only 40 mL/kg, far below the correct requirement.

Final Answer: 1580 mL per day $\Rightarrow$ C

Answer: (C) [Go Back to Q15](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	C	3	B	4	A	5	B
6	D	7	D	8	B	9	A	10	A
11	D	12	C	13	C	14	A	15	C

