INI CET Paediatrics

Sample Paper – 7

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 AIIMS 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. Regarding the primitive reflexes of a healthy term newborn, which statement is **correct**?

(A) The Moro reflex is present at birth and normally disappears by about 3 to 6 months of age

(B) The Moro reflex first appears only at 6 months of age

(C) The rooting reflex is absent at birth and develops only at one year

(D) Persistence of the Moro reflex beyond one year is a normal finding

Q2. Which one of the following neonatal definitions is **correct**?

(A) A preterm infant is one born before 37 completed weeks of gestation

(B) Low birth weight means a birth weight below 3000 g

(C) Small-for-gestational-age means a birth weight above the 90th centile for gestation

(D) A term infant is defined as one born before 34 weeks

Q3. A thriving 12-day-old, exclusively breastfed baby with good weight gain has persistent mild unconjugated hyperbilirubinaemia and is otherwise entirely well, with normal-coloured stools and urine. The most likely cause is:

(A) Breastfeeding-failure (suboptimal-intake) jaundice

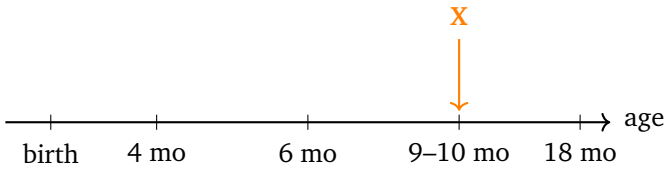
(B) Breast-milk jaundice

(C) Rhesus haemolytic disease of the newborn

(D) Biliary atresia

Growth, Development and Nutrition

Q4. On the fine-motor timeline below, the arrow **X** marks the age at which a normal infant first develops a mature *pincer grasp*, picking up a small object neatly between the tip of the thumb and index finger. That age is:



(A) About 4 months

(B) About 6 months

(C) About 9 to 10 months

(D) About 18 months

Q5. A child from a hilly, iodine-poor region presents with a visible neck swelling (goitre), stunted growth, intellectual disability and deaf-mutism. This constellation, including endemic cretinism, results from deficiency of:

(A) Selenium

(B) Iodine

(C) Zinc

(D) Copper

Q6. A boy's father is 170 cm tall and his mother is 160 cm tall. Using the mid-parental (target height) formula for a boy, namely (father's height + mother's height + 13)/2, his expected target height is:

(A) 160.0 cm

(B) 165.0 cm

(C) 178.5 cm

(D) 171.5 cm

Immunisation and Infectious Disease

Q7. Under India's national vitamin A prophylaxis programme, the schedule of vitamin A administration in children is:

(A) A single large dose given only at birth

(B) Monthly doses throughout the first year of life

(C) A first dose at 6 weeks, then once every year

(D) A first dose at 9 months (with the measles-containing vaccine), then 6-monthly up to 5 years of age

Q8. The two most effective public-health measures to prevent neonatal tetanus are:

(A) Maternal tetanus toxoid immunisation together with clean delivery and clean cord care

(B) Administration of BCG vaccine at birth

(C) Exclusive breastfeeding for six months as the sole measure

(D) Routine vitamin K injection at birth as the sole measure

Respiratory and Cardiovascular Paediatrics

Q9. A 3-year-old presents with non-severe community-acquired pneumonia (fast breathing, no chest indrawing and no danger signs) and can drink normally. The recommended first-line empirical antibiotic for outpatient treatment is:

(A) Intravenous ceftriaxone

(B) Oral amoxicillin

(C) Intravenous vancomycin

(D) Oral ciprofloxacin

Q10. A 5-year-old is brought with long-standing loud snoring, habitual mouth breathing, restless sleep with pauses in breathing, and a hyponasal ('blocked-nose') voice. The most likely underlying cause of this obstructive picture is:

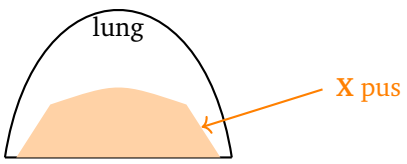
(A) Adenotonsillar hypertrophy

(B) Isolated allergic rhinitis

(C) Bilateral choanal atresia

(D) A unilateral nasal foreign body

Q11. A child recovering from lobar pneumonia develops swinging high fever, worsening breathlessness, stony dullness at the right base and greatly reduced breath sounds. A diagnostic pleural tap (schematic below, **X** marks the collection) yields frank turbid pus. The most likely diagnosis is:



(A) A simple transudative pleural effusion

(B) A tension pneumothorax

(C) An empyema (parapneumonic effusion containing pus)

(D) Complete lobar collapse

Haematology, Genetics and Systemic Disease

Q12. A previously well 4-year-old, about two weeks after a viral upper respiratory infection, develops sudden widespread petechiae and bruising. The blood count shows an isolated very low platelet count with a normal haemoglobin and white cell count, and there is no lymphadenopathy or organomegaly. The most likely diagnosis is:

(A) Acute lymphoblastic leukaemia

(B) Immune thrombocytopenic purpura (ITP)

(C) Haemophilia A

(D) Aplastic anaemia

Q13. A 4-year-old boy has progressive difficulty climbing stairs and rising from the floor, for which he 'climbs up his own legs' with his hands (a positive Gower sign). He has bulky calf muscles (pseudohypertrophy) and a markedly raised serum creatine kinase. This X-linked disorder of the dystrophin gene is:

(A) Spinal muscular atrophy

(B) Myasthenia gravis

(C) Guillain-Barre syndrome

(D) Duchenne muscular dystrophy

Emergency, Fluids and Electrolytes

Q14. A child presents in diabetic ketoacidosis (DKA). Which of the following best describes the correct **initial** sequence of management?

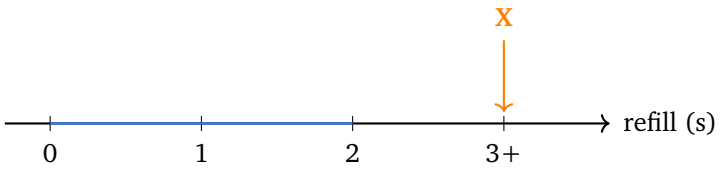
(A) Give an intravenous insulin bolus before starting any fluids

(B) Give a rapid intravenous sodium bicarbonate correction first

(C) Begin careful fluid resuscitation first, then start a continuous insulin infusion after about an hour

(D) Withhold all intravenous fluids until the blood glucose falls below 200 mg/dL

Q15. In the perfusion scale below, the arrow **X** marks a child's capillary refill time measured after pressing the nail bed. Together with cool mottled peripheries and tachycardia, this finding indicates:



(A) Normal perfusion needing no action

(B) A refill under 2 seconds confirming good perfusion

(C) A prolonged capillary refill (more than 3 seconds) indicating shock with poor perfusion

(D) Simple dehydration that never requires any fluid therapy

Detailed Solutions

Q1.

Solution

Concept – appearance and disappearance of primitive reflexes: Primitive reflexes are present from birth and normally vanish as the cortex matures.

Step 1 – recall the Moro reflex: The Moro (startle) reflex is present at birth in every healthy term newborn and normally disappears by about 3 to 6 months of age.

Step 2 – why timing matters: Its persistence beyond 6 months, or its absence at birth, suggests a neurological problem; the rooting reflex is likewise present at birth and fades by around 4 months.

Why the other options are wrong:

- B, appears only at 6 months: wrong; the Moro reflex is present from birth, not acquired later.
- C, rooting absent at birth: wrong; rooting is present at birth and helps the baby latch to feed.
- D, persistence beyond one year is normal: wrong; this is abnormal and points to cortical damage.

Final Answer: Present at birth, disappears by 3 to 6 months $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q1

Q2.

Solution

Concept – standard newborn definitions: Preterm, low birth weight and small-for-gestational-age describe different things and must not be confused.

Step 1 – the correct statement: A **preterm** infant is one born before 37 completed weeks of gestation, regardless of weight.

Step 2 – fix the terms: Low birth weight is a weight below 2500 g; small-for-gestational-age is a birth weight below the 10th centile for gestation; a term infant is born at 37 to less than 42 weeks.

Why the other options are wrong:

- B, below 3000 g: wrong; the low-birth-weight cut-off is 2500 g, not 3000 g.
- C, above the 90th centile: wrong; small-for-gestational-age means *below* the

10th centile.
- D, before 34 weeks is term: wrong; that would be preterm, and term begins at 37 weeks.

Final Answer: Preterm = born before 37 completed weeks $\Rightarrow$ A

Answer: (A) Go Back to Q2

Q3.

Solution

Concept – breast-milk jaundice versus breastfeeding-failure jaundice: Two very different feeding-related causes of neonatal jaundice are told apart by timing and by how the baby is thriving.

Step 1 – read the picture: A well, thriving baby beyond the first week, gaining weight and feeding well but with persisting mild unconjugated jaundice, has **breast-milk jaundice**, a benign late-onset jaundice thought to be due to factors in breast milk.

Step 2 – contrast with breastfeeding-failure jaundice: Breastfeeding-failure (suboptimal-intake) jaundice is an *early* jaundice in the first week from poor milk intake, dehydration and weight loss; here the baby is thriving, so that is excluded.

Why the other options are wrong:

- A, breastfeeding-failure jaundice: appears in the first week with poor intake and weight loss, not in a thriving 12-day-old.
- C, Rhesus haemolytic disease: causes severe jaundice within the first 24 hours, not benign late jaundice.
- D, biliary atresia: causes *conjugated* jaundice with pale stools and dark urine, not an unconjugated picture in a well baby.

Final Answer: Breast-milk jaundice $\Rightarrow$ B

Answer: (B) Go Back to Q3

Q4.

Solution

Concept – the pincer grasp milestone: Fine-motor development moves from a crude raking grasp to a precise pincer over the first year.

Step 1 – read the timeline: The arrow **X** points to the 9-to-10-month mark on the age axis.

Step 2 – match the milestone: A mature pincer grasp, picking up a small object between the tip of the thumb and index finger, normally appears at about **9 to 10 months**.

Why the other options are wrong:

- A, 4 months: at this age the infant only reaches for objects and cannot grasp a small item precisely.
- B, 6 months: the age of the palmar (whole-hand) grasp and transferring objects, not yet a pincer.
- D, 18 months: far later; by now the child scribbles and builds a tower, well past the pincer grasp.

Final Answer: About 9 to 10 months $\Rightarrow$ C

Answer: (C) Go Back to Q4

Q5.

Solution

Concept – iodine deficiency disorders: Iodine is essential for thyroid hormone, and its lack produces a spectrum from goitre to cretinism.

Step 1 – match the picture: Endemic goitre with stunting, intellectual disability and deaf-mutism (endemic cretinism) is the classic result of **iodine** deficiency, typically in hilly, iodine-poor regions.

Step 2 – the mechanism: Without iodine the thyroid cannot make thyroxine; low fetal and infant thyroid hormone impairs brain and skeletal development, and the gland enlarges to form a goitre.

Why the other options are wrong:

- A, selenium: important for thyroid enzyme function but not the cause of endemic goitre and cretinism.
- C, zinc: its deficiency causes acrodermatitis, poor growth and diarrhoea, not goitre.

- D, copper: its deficiency causes anaemia and bone changes (Menkes disease), not cretinism.

Final Answer: Iodine deficiency $\Rightarrow$ B

Answer: (B) Go Back to Q5

Q6.

Solution

Concept – mid-parental (target) height: A child's genetic height potential is estimated from the parents' heights.

Step 1 – write the formula for a boy: Target height = (father's height + mother's height + 13) / 2, in centimetres.

Step 2 – substitute the values: Add the parental heights: 170 + 160 = 330. Add 13 for a boy: 330 + 13 = 343. Divide by 2: 343 / 2 = 171.5 cm.

Why the other options are wrong:

- A, 160.0 cm: this ignores the +13 correction and the averaging step.
- B, 165.0 cm: this is simply the mother's height, not the calculated target.
- C, 178.5 cm: this would result from *adding* 13 twice or mis-applying the formula.

Final Answer: $(170 + 160 + 13)/2 = 171.5$ cm $\Rightarrow$ D

Answer: (D) Go Back to Q6

Q7.

Solution

Concept – national vitamin A prophylaxis schedule: Vitamin A is given in large periodic doses to prevent deficiency and its ocular complications.

Step 1 – recall the schedule: The first dose is given at **9 months** of age along with the measles-containing vaccine, and thereafter one dose every 6 months up to 5 years of age (nine doses in all).

Step 2 – the purpose: Regular high-dose vitamin A reduces night blindness, xerophthalmia and the severity of infections such as measles and diarrhoea.

Why the other options are wrong:

- A, single dose at birth: incorrect; prophylaxis is periodic, not a one-off birth

dose.

- B, monthly doses: incorrect; large doses are given 6-monthly, not every month.
- C, first dose at 6 weeks then yearly: incorrect timing and interval; it starts at 9 months and is 6-monthly.

Final Answer: First dose at 9 months, then 6-monthly to 5 years ⇒ D

Answer: (D) Go Back to Q7

Q8.

Solution

Concept – prevention of neonatal tetanus: Neonatal tetanus follows contamination of the cord with Clostridium tetani spores, and prevention targets both mother and delivery.

Step 1 – name the two measures: The mainstays are **maternal tetanus toxoid immunisation** (which gives the baby passive protection through placental antibodies) together with **clean delivery and clean cord care**.

Step 2 – how they work: Maternal antibodies neutralise the toxin in the newborn, while a sterile cutting instrument and clean cord stump prevent spore entry in the first place.

Why the other options are wrong:

- B, BCG at birth: protects against tuberculosis, not tetanus.
- C, exclusive breastfeeding alone: excellent for nutrition and immunity generally but does not prevent tetanus.
- D, vitamin K alone: prevents haemorrhagic disease of the newborn, not tetanus.

Final Answer: Maternal TT plus clean delivery and cord care ⇒ A

Answer: (A) Go Back to Q8

Q9.

Solution

Concept – first-line therapy for non-severe childhood pneumonia: Community-acquired pneumonia in a young child is most often pneumococcal, and treatment is chosen accordingly.

Step 1 – pick the drug: For non-severe community-acquired pneumonia that can be managed at home, the recommended first-line antibiotic is **oral amoxicillin**.

Step 2 – the rationale: Streptococcus pneumoniae is the leading bacterial cause, and oral amoxicillin gives reliable cover with good oral bioavailability, avoiding unnecessary admission.

Why the other options are wrong:

- A, intravenous ceftriaxone: reserved for *severe* pneumonia with danger signs or inability to feed, not first-line outpatient therapy.
- C, intravenous vancomycin: used for suspected resistant staphylococcal disease, not routine pneumonia.
- D, oral ciprofloxacin: a fluoroquinolone, not recommended as first-line for typical childhood pneumonia.

Final Answer: Oral amoxicillin $\Rightarrow$ B

Answer: (B) Go Back to Q9

Q10.

Solution

Concept – adenotonsillar hypertrophy and obstructive sleep: Chronic upper-airway obstruction in a young child usually comes from enlarged adenoids and tonsils.

Step 1 – read the picture: Long-standing snoring, mouth breathing, restless sleep with apnoeic pauses and a hyponasal voice point to **adenotonsillar hypertrophy** causing obstructive sleep-disordered breathing.

Step 2 – the consequence: Untreated, it can lead to poor sleep, daytime behaviour problems, growth faltering and, rarely, cor pulmonale; adenotonsillectomy is often curative.

Why the other options are wrong:

- B, isolated allergic rhinitis: causes nasal blockage and sneezing but rarely the full obstructive-apnoea picture with snoring.

- C, bilateral choanal atresia: presents in the newborn with cyclical cyanosis relieved by crying, not in a 5-year-old.
- D, unilateral nasal foreign body: causes a foul unilateral nasal discharge, not bilateral snoring and apnoea.

Final Answer: Adenotonsillar hypertrophy ⇒ A

Answer: (A) Go Back to Q10

Q11.

Solution

Concept – empyema (parapneumonic effusion): A pleural collection of pus complicating pneumonia is an empyema.

Step 1 – read the clues: Swinging fever, worsening breathlessness, stony dullness and greatly reduced breath sounds after pneumonia, with a pleural tap yielding **frank pus**, define an **empyema**.

Step 2 – the management: It needs drainage (intercostal chest tube, sometimes with fibrinolytics or surgery) plus a prolonged course of appropriate antibiotics.

Why the other options are wrong:

- A, simple transudative effusion: gives clear straw-coloured fluid, not pus, and is not typically infective.
- B, tension pneumothorax: produces a hyper-resonant, not dull, hemithorax with tracheal shift and no pus.
- D, lobar collapse: causes volume loss and mediastinal shift towards the lesion, not a purulent pleural tap.

Final Answer: Empyema (parapneumonic effusion with pus) ⇒ C

Answer: (C) Go Back to Q11

Q12.

Solution

Concept – immune thrombocytopenic purpura (ITP): Isolated thrombocytopenia after a viral illness in an otherwise well child is the hallmark of ITP.

Step 1 – read the clues: Sudden petechiae and bruising about two weeks after a viral infection, with an *isolated* very low platelet count but normal haemoglobin and white cells and no organomegaly, is classic for **immune thrombocytopenic**

purpura.

Step 2 – the mechanism: Antiplatelet antibodies form after the viral trigger and cause immune destruction of platelets; most childhood ITP is self-limiting.

Why the other options are wrong:

- A, acute lymphoblastic leukaemia: usually shows other cytopenias, blasts, lymphadenopathy or hepatosplenomegaly, not an isolated low platelet count.
- C, haemophilia A: an inherited clotting-factor disorder causing deep bleeds and haemarthroses with a *normal* platelet count.
- D, aplastic anaemia: causes pancytopenia (all cell lines low), not an isolated thrombocytopenia.

Final Answer: Immune thrombocytopenic purpura ⇒ B

Answer: (B) Go Back to Q12

Q13.

Solution

Concept – Duchenne muscular dystrophy (DMD): A young boy with progressive proximal weakness and a very high creatine kinase points to DMD.

Step 1 – read the clues: Difficulty climbing stairs, the positive **Gower sign** (climbing up his own legs to stand), calf pseudohypertrophy and a markedly raised creatine kinase are classic for **Duchenne muscular dystrophy**.

Step 2 – the genetics: DMD is an X-linked recessive disorder caused by mutations in the dystrophin gene, so affected children lack functional dystrophin and boys are affected.

Why the other options are wrong:

- A, spinal muscular atrophy: causes weakness with absent reflexes and fasciculations from anterior-horn-cell loss, without calf pseudohypertrophy or a very high CK.
- B, myasthenia gravis: causes fatigable weakness, ptosis and diplopia, not a fixed progressive proximal myopathy with high CK.
- C, Guillain-Barre syndrome: causes acute ascending weakness with areflexia after an infection, not a chronic progressive course.

Final Answer: Duchenne muscular dystrophy ⇒ D

Answer: (D) Go Back to Q13

Q14.

Solution

Concept – initial management of paediatric DKA: The order of treatment in diabetic ketoacidosis is critical for safety.

Step 1 – fluids first: Management begins with **careful fluid resuscitation** to restore circulating volume and perfusion.

Step 2 – then insulin: A continuous **insulin infusion** is started about an hour after fluids are commenced, allowing glucose and ketones to fall gradually while potassium is monitored and replaced.

Why the other options are wrong:

- A, insulin bolus before fluids: dangerous; giving insulin before volume replacement risks a sudden osmotic shift and worsening shock, and boluses are avoided in children.
- B, rapid bicarbonate first: not recommended routinely; it can worsen hypokalaemia and cerebral oedema.
- D, withhold all fluids until glucose is below 200: incorrect; fluids are needed from the outset, and dextrose is *added* as glucose falls rather than withholding fluids.

Final Answer: Fluids first, then an insulin infusion after about an hour $\Rightarrow$ C

Answer: (C) Go Back to Q14

Q15.

Solution

Concept – capillary refill time and the recognition of shock: Capillary refill is a quick bedside marker of peripheral perfusion.

Step 1 – read the scale: The arrow **X** sits beyond the 3-second mark; a normal refill is under 2 seconds, so this value is prolonged.

Step 2 – interpret with the other signs: A capillary refill of **more than 3 seconds** with cool mottled peripheries and tachycardia indicates poor perfusion, that is, shock, which needs urgent fluid resuscitation.

Why the other options are wrong:

- A, normal needing no action: wrong; a prolonged refill with tachycardia is an emergency, not normal.
- B, under 2 seconds: wrong; the arrow lies beyond 3 seconds, not in the normal range.
- D, dehydration never needing fluids: wrong; this picture demands prompt fluid resuscitation.

Final Answer: Prolonged capillary refill (more than 3 seconds) indicating shock $\Rightarrow$ C

Answer: (C) Go Back to Q15

Answer Key

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