

## NNF FELLOWSHIP FOR DOCTORS APRIL 2024 EXAMINATION

### Theory Paper II (MCQs)

Total Marks: 50

Time: 60 minutes

Each question has one right answer.

Please write the alphabet a/ b/ c or d in the answer key against the question number.

Each question carries one mark.

There is no negative marking.

- All are components of Biophysical profile (BPP) except?
  - Fetal breathing movements
  - Fetal muscle tone
  - Fetal umbilical artery doppler
  - Fetal body movements
- Identify the formula for calculating Fractional excretion of sodium (FeNa)?
  - $\text{urine sodium} \times \text{urine creatinine} / \text{plasma sodium} \times \text{plasma creatinine}$
  - $\text{urine sodium} \times \text{plasma creatinine} / \text{plasma sodium} \times \text{urine creatinine}$
  - $\text{plasma sodium} \times \text{plasma creatinine} / \text{plasma sodium} \times \text{urine creatinine}$
  - $\text{plasma sodium} \times \text{urine creatinine} / \text{plasma sodium} \times \text{plasma creatinine}$
- You are attending the delivery of a 31-year-old Primi mother with Hepatitis B (**HBsAg and HBeAg positive**). She had developed an acute HBV infection during late pregnancy. The baby was born at 36 weeks and has birth weight of 2.3 kg. In the absence of any postnatal prophylaxis, what would be the mother to child transmission rate in this case?
  - 10-20%
  - 20-30%
  - 40-50%
  - 70-90%
- According to The European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) 2022 guidelines, the recommended daily intake of Vitamin D in preterm VLBW babies is:
  - 400 IU/day
  - 200 IU/day
  - 400-700 IU/day
  - 400-700 IU/kg/day
- Expand SUMAN scheme?
  - Suraksha Mitra Abhiyan
  - Secure mother and newborn initiative
  - Sukhi Matru Navjaat Abhiyaan
  - Surakshit Matritva Aashwasan
- The most common cause of abdominal mass in neonates is:
  - Neuroblastoma
  - Multicystic Dysplastic Kidney
  - Polycystic kidney

- d. Hepatoblastoma
7. For providing developmentally supportive care, the goal of noise control in NICU is to keep the sound below a mean level of
- 30 dB
  - 45 dB
  - 60 dB
  - 75 dB
8. Mechanism of action of milrinone
- PDE5 inhibitor
  - PDE4 inhibitor
  - PDE3 inhibitor
  - Endothelin antagonist
9. What is the change in pH, if  $pCO_2$  rises acutely by 10 mm of Hg?
- Drop in pH by 0.08
  - Drop in pH by 0.06
  - Increase in pH by 0.06
  - Increase in pH by 0.08
10. Which of the following molecules (in thyroid hormone metabolism) are completely impermeable through placenta?
- Iodine
  - TRH
  - Thyroid hormone (T3 & T4)
  - TSH
11. A 35 weeks baby was born by vaginal delivery. His APGAR score was normal. On examination, the baby is found to have, respiratory rate of 70/minute, SPO<sub>2</sub> of 80% on 0.4 FiO<sub>2</sub>, mild retractions, good air entry (on chest auscultation) and a clearly audible grunt. What is Downe's score for the baby?
- 5
  - 6
  - 7
  - 8
12. Which metabolic disturbance may be seen in neonates with subcutaneous fat necrosis?
- Hypocalcaemia
  - Hypercalcemia
  - Hyperlipidaemia
  - Hyperkalaemia
13. A 26-day old well thriving neonate has "white" stools. Lab tests reveal conjugated hyperbilirubinemia and a raised GGT. USG abdomen reveals triangular cord sign. Which of the following statements is FALSE ?
- Extrahepatic biliary atresia (EHBA) is a possible diagnosis.
  - The characteristic histopathology of EHBA are bile duct proliferation, bile plugs in ducts, fibrosis, and lymphocytic infiltrates in the portal tracts.
  - The standard treatment of biliary atresia is the Kasai hepatic portoenterostomy.

- d. Kasai hepatic portoenterostomy should preferably be done between 3-6 months of life.
14. During therapeutic hypothermia for moderate to severe hypoxic ischemic encephalopathy, the target temperature range is
- 32 to 33 degrees Celsius
  - 33 to 34 degrees Celsius
  - 34 to 35 degrees Celsius
  - 31 to 32 degrees Celsius
15. Which of the following causes of hypoglycaemia are characterized by absence of ketones in the urine?
- Hyperinsulinism
  - Fatty acid oxidation defects
  - Both a and b
  - None of the above
16. The optimum time to do a CBC (complete blood count) in a case of suspected early onset neonatal sepsis is:
- Within first 2 hours of birth
  - 6-12 hours after birth
  - 36-48 hours after birth
  - 48-72 hours after birth
17. Which cyanotic heart disease of newborn doesn't improve with PGE1 infusion?
- Infra-diaphragmatic TAPVC
  - Tricuspid atresia with PDA
  - Transposition of great arteries
  - Pulmonary atresia
18. Which of the following is used to monitor low molecular weight heparin (LMWH) therapy in cases of neonatal thrombosis?
- Anti factor Xa levels
  - Heparin levels
  - Prothrombin time and INR
  - APTT
19. Monroe chart and Mouzinho charts are used in neonates for:
- BP centiles reference
  - Neutrophil count reference
  - Hemoglobin transfusion cut offs.
  - Ventricular index monitoring
20. A 10-day old neonate with vomiting and poor feeding is dehydrated, with prolonged CFT and mean BP of 35 mm Hg. There is hyperpigmentation in umbilical and genital regions. Palpation of genitals reveal "empty scrotum" (nonpalpable gonads). RBS is 40 mg/dl. Blood gas shows severe metabolic acidosis. Sodium levels are 119 meq/l and potassium levels were 7.9 meq/l. What is the most probable diagnosis?
- Congenital hypertrophic pyloric stenosis
  - Congenital adrenal hyperplasia
  - Critical coarctation of aorta

- d. Renal tubular acidosis
21. Most common site of involvement (arterial territory) in neonatal stroke is:
- a. Anterior cerebral artery
  - b. Middle cerebral artery
  - c. Posterior cerebral artery
  - d. Cerebellar artery
22. Which of the following is NOT a part of quadruple marker screen used for detecting aneuploidy in antenatal period in second trimester?
- a. Pregnancy associated plasma protein A (PAPP A)
  - b. Maternal serum alpha fetoprotein (MSAFP)
  - c. Beta HCG
  - d. Unconjugated estriol
23. Which of the following drugs used postnatally in preterm babies, can result in Idiopathic focal intestinal perforation?
- a. Surfactant
  - b. Caffeine Citrate
  - c. Indomethacin
  - d. Amikacin
24. Which of the following is used in meta-analyses to visually detect publication bias?
- a. Forest Plot
  - b. Funnel Plot
  - c. Kaplan Meier Curve
  - d. ROC Curve
25. Which of the following scores/scale is used for objective evaluation of breastfeeding in the early postpartum period?
- a. LATCH score.
  - b. BIND score.
  - c. CRIES scale.
  - d. COMFORT-Neo scale.
26. In neonatal ventilation, all affect mean airway pressure except:
- a. PIP
  - b. FiO<sub>2</sub>
  - c. PEEP
  - d. Ti and Te
27. Which of the following is a NOT a risk factor for development of invasive fungal infection in preterm neonates?
- a. Use of H<sub>2</sub> blockers
  - b. Use of prolonged antibiotics, particularly carbapenems
  - c. Use of post-natal steroids
  - d. Colostrum mouth painting
28. A 37 weeks baby had an APGAR score of 4 & 7 at 5 and 10 minutes of life respectively. At 6 hours of life, the baby is lethargic, has mild hypotonia, poor suck, miosis with increased oral secretions. His heart rate is 100/min with normal blood pressure and perfusion. His

respiratory efforts are normal. According to Sarnat and Sarnat classification, what stage of encephalopathy does this baby have?

- a. Stage 1
- b. Stage 2
- c. Stage 3
- d. None of the above

29. A newborn has respiratory distress after birth. The baby has small jaw, glossoptosis and cleft palate. Which of the following strategies may be helpful in the delivery room to manage respiratory distress in this baby?

- a. Prone positioning
- b. Nasopharyngeal airway
- c. Both above
- d. None of the above

30. A term baby is depressed at birth. After 15 seconds of positive pressure ventilation, the assistant announces that the baby has a heart rate of 50/min. What should be the immediate next step?

- a. To start chest compression.
- b. To establish umbilical venous access and push IV adrenaline.
- c. To give endotracheal adrenaline
- d. To continue PPV and take ventilation corrective measures (MRSOPA)

31. Which one of the following statements regarding New Ballard Scoring (NBS) is FALSE?

- a. Score ranges from -10 to 50.
- b. NBS can be used from 20 weeks to 44 weeks.
- c. It is best used within 96 hours of life for assessing the gestational age.
- d. It should be used after the first week of life for assessing the gestational age.

32. A week-old infant presents with blood in his stools. He was born at home. He has been breast-fed, he is not jaundiced; his examination is otherwise normal. He is on no medications. Which of the following is the most likely diagnosis?

- a. Child abuse
- b. Vitamin K deficiency bleeding
- c. Breast milk allergy
- d. DIC

33. Neonatal Mortality rate is defined as

- a. No. of neonatal deaths per 100 live births in a year
- b. No. of neonatal deaths per 1000 total (live and still) births in a year
- c. No. of neonatal deaths per 1000 live births in a year
- d. No. of neonatal deaths in a year

34. Which of the following radiological findings is pathognomic of NEC?

- a. Pneumatosis intestinalis
- b. Bowel loop dilatation
- c. Pneumothorax
- d. Focal intestinal calcifications

35. Which are the 4 Ds covered in RBSK (Rashtriya Bal Swasthya Karyakram) program?

- a. Defects at birth, Deficiencies, Development Delays, Disabilities

- b. Defects at birth, Diseases, Deficiencies, Development Delays including Disabilities
  - c. Diseases in children, Deficiencies, Development Delays, Disabilities
  - d. Defects at birth, Diseases, Development Delays, Disabilities
36. A 2-day old term baby boy is being ventilated for MAS with PPHN. ABG shows pH 7.1,  $\text{paO}_2$  55 mmHg,  $\text{pCO}_2$  58 mmHg,  $\text{HCO}_3$  15 mmol/l. Interpret the ABG.
- a. Mixed respiratory and metabolic acidosis
  - b. Compensated respiratory acidosis
  - c. Compensated metabolic acidosis
  - d. Respiratory alkalosis
37. The drug of choice for Supraventricular tachycardia in neonates is:
- a. Adenosine
  - b. Lidocaine
  - c. Flecainide
  - d. Propranolol
38. True statements about anemia of prematurity are all EXCEPT:
- a. It is normocytic, normochromic.
  - b. Occurrence coincides with physiological anemia.
  - c. Reticulocyte count is usually very high.
  - d. Iatrogenic losses are a common contributing factor.
39. In congenital diaphragmatic hernia, which of the following statements is FALSE?
- a.  $\text{LHR} (\text{Lung Head Ratio}) = \text{Lung area} / \text{Head circumference}$ , where Lung area = Longest Diameter of ipsilateral lung \* Perpendicular diameter of ipsilateral lung.
  - b.  $\text{LHR} = \text{Lung area} / \text{Head circumference}$ , where Lung area = Longest Diameter of contralateral lung \* Perpendicular diameter of contralateral lung.
  - c.  $\text{LHR} > 1.4$  indicates good prognosis.
  - d. The presence of liver in thoracic cavity indicates poor prognosis.
40. Which of the following is not included in CHARGE syndrome?
- a. Congenital cataract
  - b. Heart disease
  - c. Atresia of the choanae
  - d. Retarded Growth and mental development
41. All are true statements regarding late Foetal Growth Restriction (Late FGR) EXCEPT
- a. Onset is  $> 32$  weeks
  - b. Aspirin started at 32 weeks is beneficial
  - c. Associated with polycythemia and hypoglycemia
  - d. Is an important cause of stillbirth
42. Most important retinal angiogenic factor implicated in pathogenesis of Retinopathy of Prematurity (ROP) is:
- a. VEGF
  - b. IGF 2
  - c. P selectin
  - d. E Catherin
43. Which substance in breast milk inhibits E. coli?

- bilites
- a. Lactoferrin
  - b. IL7
  - c. Bile Salt Stimulated Lipase
  - d. TNF

44. High placement of umbilical arterial catheter means catheter location on X-Ray between
- a. T6 – T9
  - b. T3 – T4
  - c. T11 – T12
  - d. L1 – L3

45. Which of the following is true regarding Vein of Galen Malformation (VOGM)?
- a. It can cause high output cardiac failure due to high-flow AV shunts of VOGM
  - b. Potential complications include hydrocephalus, cardiac failure, refractory PPHN.
  - c. Treatment is coil embolization
  - d. All the above

46. The amount of colostrum generally produced in first 24 hours after birth is approximately:
- a. 15-30 ml
  - b. 60-80 ml
  - c. 120-150 ml
  - d. 150-200 ml

47. What is the drug of choice for treatment of maternal toxoplasmosis during pregnancy before 18 weeks of gestation?
- a. Spiramycin
  - b. Pyrimethamine
  - c. Sulphadiazine
  - d. Doxycycline

48. Which of the following inborn errors of metabolism is associated with sweaty feet odor in urine?
- a. Beta-methylcrotonic aciduria
  - b. Isovaleric acidemia
  - c. MSUD
  - d. Trimethylaminuria

49. One time constant of the respiratory system is defined as the time it takes for the alveoli to empty ..... of its tidal volume through the airways to the mouth or ventilator:
- a. 63%
  - b. 95%
  - c. 85%
  - d. 25%

50. All are true regarding Metabolic bone disease/ Osteopenia of prematurity, EXCEPT
- a. It is primarily due to Vitamin D deficiency (as breast milk is deficient in vitamin D)
  - b. If uncorrected, the clinical features of rickets will be evident by about 6 weeks of age.
  - c. The earliest biochemical changes include a decrease in inorganic phosphate and elevated Alkaline phosphatase (ALP).

- d. Loss of about 40% bone mineralization is required before X ray changes are evident.



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### ANSWER KEY

1. c
2. b
3. d
4. d
5. d
6. b
7. b
8. c
9. a
10. d
11. b
12. b
13. d
14. b
15. c
16. b
17. a
18. a
19. b
20. b
21. b
22. a
23. c
24. b
25. a
26. b
27. d
28. b
29. c
30. d
31. d
32. b
33. c
34. a
35. b
36. a
37. a
38. c
39. a
40. a
41. b
42. a
43. a
44. a
45. d
46. a

47. a

48. b

49. a

50. a