

**NATIONAL NEONATOLOGY FORUM
NNF FELLOWSHIP EXAMINATION
OCT 2022
THEORY PAPER -2 (MCQ)**

Each question carries 1 mark

No negative marking

Answer on separate sheet and not on this paper

Separate sheet provided

MARKS – 50

1. A 750gms, 28 weeks baby, at 72 hours of life, has a sodium level of 150mEq/L, & K 4.5mEq/L. what would you do to reduce the sodium levels:
 - a. Sodium free fluid
 - b. Prevent losses by using plastic bag
 - c. Reduce total fluid intake
 - d. Increase dextrose concentration

2. Which of the following is not a ESKAPE bug:
 - a. Staphylococcus epidermidis
 - b. Enterobacter
 - c. Enterococcus
 - d. Pseudomonas

3. The effects of micronutrients on pregnancy, is a less well studied topic. Out of the options given which is true:
 - a. zinc deficiency affects fetal growth, causes infertility and spontaneous abortions
 - b. dietary intake of Vitamin C is associated with IUGR
 - c. 1/3 rd of infants in India weighing < 2.5kg, have maternal iodine deficiency
 - d. Environmental toxins like mercury cause growth restriction by depleting zinc absorption.

4. The catch-up growth in an IUGR is not associated with:
 - a. Type 2 diabetes in adult who were born small and became overweight in their childhood
 - b. Insulin resistance was most prominent in Indian children who were SGA at birth
 - c. Kidney volume is smaller in adults who were having fast breathing
 - d. Adult hypertension is associated with being born at low birth weight

5. As per European consensus guidelines for management of RDS which of the following are recommended:
 - a. For infants > 32 weeks gestation SpO₂ > 80% should be achieved within 5 minutes
 - b. Use an initial FiO₂ of 0.30 for babies born > 32 weeks
 - c. Use of sustained inflation has long term benefit
 - d. Use gentle positive pressure lung inflation with 20-25 cm H₂O PIP for an apnoeic neonate.

6. Which of the following statement is incorrect about brachial plexus injury
- Caused by excessive traction on head, neck and arm during birth
 - Duchenne Erb palsy is the most common type of brachial plexus injury
 - Nerve root involvement in Erb palsy is C3, C4, C5
 - Nerve root involvement in Klumpke palsy is C7/C8/T1
7. Plasma aminoacid levels would be able to detect which IEM:
- Organic acidemia
 - Zellweger syndrome
 - Fatty acid oxidation defect
 - Phenylketonuria
8. Swaddling of a baby helps in the following
- Facilitate flexion
 - Minimize upper and lower extremity abduction
 - Both a and b
 - Increases cervical neck hyperextension.
9. Incidence of cerebral palsy in VLBW infants is
- 10%
 - 20%
 - 22%
 - 30%
10. During air transport what is the correct statement:
- Small pneumothorax before journey doesn't need to be drained as the altitude increases the barometric pressure drops
 - As the altitude increases, barometric pressure drops and volume of gases would increase can lead to increase in pneumothorax so it is better to drain it before starting the journey
 - As the altitude increases the barometric pressure and partial pressure of oxygen decreases so oxygen requirement during transport decreases
 - A neonate with severe lung disease can be easily transported in air on lower FiO₂ as the partial pressure of oxygen decreases.
11. In a population of thousand neonates, it is found that 100 new-borns have a specific disease. The others are well. The new less expensive screening test kit that is being validated to diagnose this disease detects 180 of the neonates to have the disease even though 100 of the neonates actually do not have the disease.

What is the sensitivity and positive predictive value of the new screening test kit:

- 70% and 60%
- 60% and 30%
- 20% and 80%
- 80% and 44%

12. The COIN Trial a multicentre study conducted in multiple countries was designed to investigate:
- Effect of NCPAP Vs intubation and ventilation shortly after birth on incidence of BPD or death in infants born 25- 28 weeks gestation.
 - Whether the early use of N CPAP with prophylactic surfactant would reduce the need for subsequent ventilation in infants born between 27-29 weeks
 - High flow oxygen is non -inferior to standard treatment-N CPAP as primary respiratory support for preterm infants
 - the effects of different target ranges for oxygen saturation as measured by pulse oximetry on death or major morbidity.
13. When it comes to parental nutrition in preterm infants choose a false statement:
- VLBW who don't receive amino acids catabolise body protein at a rate of 1g/kg/day
 - It is recommended to start amino acids for all ELBW infants within 24 hours at a rate of 2-3 g/kg/day
 - Protein infusion rates are increased to target 3.5 -4 g/kg/day for preterm infants and 4-4.5 g/kg/day for term infants
 - Lipid emulsions should be administered over 24 hours.
14. AAP recommends Iron fortification for growing preterm babies at _____g/kg/day to be started afterweeks of life
- 2-4 mg/kg/day after 2 weeks of life
 - 5-6 mg/kg/day after 4 weeks of life
 - 1-2 mg/kg/day after 3 weeks of life
 - 4.5-5 mg/kg/day after 4 weeks of life
15. For neonates born < 35 weeks gestation which bilirubin operation thresholds can be used:
- AAP
 - Maisels
 - Lubchenco
 - Fenton's
16. Which statement is correct about management of neonatal hyperbilirubinemia:
- Intensive phototherapy should be started if rate of rise of jaundice is >0.2mg/hour
 - While giving phototherapy IV fluids must be initiated to reduce the chance of dehydration
 - Intensive phototherapy should be given if bilirubin continues to rise and fails to drop after 6 hours of starting phototherapy
 - Stop breastmilk completely for 48 hours when suspecting breast-milk jaundice

17. Which statement is true about the difference in neonate and adult thorax:

- a. Infant's thorax is ellipsoid and adult thorax is cylindrical
- b. Insertion of infant's diaphragm is more horizontal as compared to adult
- c. Intercostal muscles in adults have shorter course
- d. Adults have more compliant chest wall as compared to infants.

18. Main contributor to lung elastic recoil in new-born is

- a. FRC
- b. Intra-alveolar pressure
- c. Surface tension
- d. Distending air way pressure

19. The following statement about xanthine therapy in preterm neonates is false:

- a. Xanthine therapy enhances respiratory neural output which leads to increase minute ventilation, decrease hypoxic depression of breathing
- b. Xanthine inhibits phosphodiesterase
- c. Xanthines are effective in decreasing the incidence of bronchopulmonary dysplasia
- d. Use of xanthine beyond 40 weeks has no benefit in reducing intermittent hypoxic episodes

20. While ventilating a neonate, low PEEP (<4 cm H₂O) setting predisposes the neonate to:

- a. Incomplete exhalation with hypercarbia
- b. Impairment of venous return and decreased cardiac output
- c. Low end expiratory lung volume and poor oxygenation
- d. Improved lung mechanics

21. A 28 weeks 1 kg baby is receiving total fluid intake of 160ml/kg/day, out of which he is receiving 5ml/2hourly EBM feeds, amino acids at 3g/kg/day and rest of the volume is IV fluids Dextrose 15%. What is amount of total non- protein calories the baby is receiving:

- a. 50 kcal/kg/day
- b. 65 kcal/kg/day
- c. 75 kcal/kg/day
- d. 90 kcal/kg/day

22. Choose the false statement about lung protective ventilator strategies:

- a. Minimize end expiratory over distension
- b. Optimizing end expiratory lung volume by reversing atelectasis
- c. Use of volume targeted ventilation is preferred over pressure control ventilation
- d. Keeping tidal volume below 4 ml/kg and PEEP 3-4 cm H₂O helps reduce atelectasis.

23. A 3 kg term baby is shifted to your hospital at 24 hours with history of passing meconium in utero. She was kept on NCPAP PEEP of 6 and FiO₂ of 60% elsewhere. On arrival the baby is dusky, has mean BP of 30mmHg and pre-post ductal saturation difference of 10. You decide to ventilate her on HFOV what statement is correct about the principal of HFOV:
- Amplitude is adjusted to generate vibration of chest up to mid abdomen
 - Initial Mean air pressure would be 10-12 on HFOV as the baby is hypotensive
 - MAP is generally adjusted seeing the PCO₂ on the blood gas
 - For PEEP adjustment there should 7 rib expansion.
24. Recommended respiratory support parameters for consideration of operative repair of congenital diaphragmatic hernia
- Oxygenation index < 12 for > 24 hours
 - FiO₂ < 50 and Pre ductal SpO₂ >92 %
 - PaCO₂ < 70 mmHg
 - MAP < 20 and amplitude < 50
25. A Neonatologist diagnoses a Newborn to have left Club foot. What are the important examination points that would have clinched the diagnosis?
- Hindfoot Equinus and Varus, Midfoot cavus and forefoot adductus with ipsilateral small calf muscle
 - Hindfoot Equinus and Varus, Midfoot cavus and forefoot abducts with ipsilateral small calf muscle
 - Hindfoot Equinus and Varus, Midfoot cavus and forefoot adductus with ipsilateral enlarged calf muscle
 - Hindfoot Equinus and Valgus, Midfoot cavus and forefoot adductus with ipsilateral small calf muscle
26. The prematurity day was initiated by the European Foundation for the Care of Newborn (EFCNI). What is the date when it is celebrated?
- 21st November
 - 8th August
 - 17th November
 - 31st December
27. A 6-day-old female is born with an omphalocele (8.5cm), she weighs 4200 grams. On examination there is an enlarged abdomen with visceromegaly and macroglossia. The left upper and lower limbs are larger than the right ones, both in length and mid-thigh circumference. Which of the following tests is most likely to be abnormal in this patient?
- Renal function tests
 - Serum glucose
 - Brain magnetic resonance imaging
 - Spine plain films

28. The two specific goals of INAP Viz achieving the single digit NMR and Still birth rate are to be achieved by all the states individually by

- a) 2020
- b) 2025
- c) 2030
- d) 2035

29. The peripheral ablation treatment is recommended for all EXCEPT

- a) Zone 1 any stage with plus
- b) Zone II Stage 3 ROP without Plus
- c) Zone 1, Stage 3 ROP without Plus
- d) Zone II, Stage 2 or 3 with Plus

30. Absolute Contraindications to Breastfeeding:

- a) Active human immunodeficiency virus (HIV) infection
- b) Vaginal herpes
- c) Tuberculosis
- d) Galactosemia

31. Pulse oximetry screening is most likely helpful to diagnose following CCHD except

- a) Truncus arteriosus
- b) Total anomalous pulmonary venous return
- c) Hypoplastic left heart syndrome
- d) L-Transposition of great arteries.

32. Which among the following is not true regarding erythema toxicum neonatorum?

- a) Occurs in 50% of term babies
- b) Contains eosinophils on Wright or Giemsa stain
- c) Typically appears on 2nd or 3rd day of life
- d) Typically resolve in second week of life.

33. Which type of forceps application is most commonly associated with facial nerve injury?

- a) Outlet forceps
- b) Rotational forceps
- c) Midforceps
- d) All the above

34. 33 years old Primi mother gave birth to 3.2 kg male neonate at of 39weeks vaginally. Baby developed respiratory distress soon at birth. Chest Xray was suggestive of severe RDS. 2D Echo done was normal. Which of the following mutations could have resulted in severe RDS in this baby?
- a) Mutation in Surfactant protein C
 - b) Mutation in TLR-4
 - c) Mutation in ABCA3
 - d) Mutation in IL-18
35. Limited abduction at birth is characteristic of which type of dislocation?
- a) Classic DDH
 - b) Teratologic type of DDH
 - c) Congenital abduction contracture
 - d) All the above
36. Most common cause of scrotal swelling in newborn is
- a) Inguinal hernia
 - b) Testicular torsion
 - c) Hydrocele
 - d) Scrotal hematoma
37. Drug therapy for asymmetric septal hypertrophy in infants of diabetic mothers?
- a) Sildenafil
 - b) Propranolol
 - c) Nifedipine
 - d) Enalapril
38. The epileptic syndrome in neonate associated with the abnormality of the voltage gated potassium channel is
- a) Jitteriness
 - b) Hyperreflexia
 - c) Benign familial Neonatal Convulsions
 - d) Benign Sleep Myoclonus
39. What is the blood volume that is needed to be exchanged in a term 3 kg baby with polycythemia with PCV of 75% assuming that the blood volume is 80 ml/kg and the target PCV is 50%
- a) 100 ml
 - b) 90ml
 - c) 80ml
 - d) 70ml

40. Which of the following drugs has been tried in refractory Hypoglycemia, as it; Inhibits B cell Proliferation and induces insulin resistance.

- a) Nifedipine
- b) Dizoxide
- c) Serolimus
- d) RZ-358

41. Which Quality Improvement method helps in root cause analysis of a problem?

- a) PDSA cycle
- b) Six sigma approach
- c) Run charts and control charts
- d) Fishbone analysis

42. Congenital absence of which surfactant protein (SP) is most likely to be lethal in the neonatal period?

- a) SP-A.
- b) SP-B.
- c) SP-C.
- d) SP-D.

43 . You are asked to review a 2-day-old term infant on the postnatal ward because of poor feeding and green-stained vomitus. On examination he is irritable and his abdomen is mildly tender, otherwise examination is normal. Which one of the following investigations is MOST LIKELY to give the diagnosis?

- a) Endoscopy.
- b) Upper GI contrast study.
- c) Lower GI contrast study.
- d) Plain abdominal radiograph.

44. One of the mechanisms of action of Inhaled Nitric Oxide used in PPHN is

- a) Reduces intracellular cyclic AMP
- b) Increases intracellular cyclic AMP
- c) Reduces intracellular cyclic GMP
- d) Increases intracellular cyclic GMP

45. Which equipment is based on Beer Lambert law?

- a) Ventilator
- b) Pulse oximeter
- c) Infusion pump
- d) Therapeutic hypothermia machine

46. The maternal serum screening test or “quadruple test” is done between 14- and 22-weeks’ gestation. It includes all of the following Except
- a) Alpha-fetoprotein
 - b) β -hCG
 - c) Unconjugated pregninolone
 - d) Inhibin-A
47. A term infant is born with Apgar score 5 and 7 at 1 and 5 min respectively. The infant has a HR 170 bpm and demonstrates pallor with hepatosplenomegaly. A Kleihauer-Betke test was positive. The most likely diagnosis is
- a) Erythroblastosis fetalis
 - b) Hereditary spherocytosis
 - c) Chronic fetomaternal transfusion
 - d) ABO incompatibility
48. The blueberry muffin appearance in infants with TORCH infections most likely represents
- a) Dermal erythropoiesis
 - b) Palpable purpura
 - c) Metastatic hepatic tissue
 - d) Viral lesions
49. What is false about Aggressive posterior retinopathy of prematurity (APROP) from following options
- a) associated with severe plus disease,
 - b) flat neovascularisation in zone 3
 - c) intraretinal shunting and haemorrhages,
 - d) rapid progression to retinal detachment
50. The most critical determinant of ventilator-induced lung injury in preterm neonates is excessive
- a) Gas flow
 - b) Oxygen concentration
 - c) Tidal volume
 - d) Time constant

