

**NATIONAL NEONATOLOGY FORUM
NNF FELLOWSHIP EXAMINATION
APRIL 2022**

THEORY PAPER -1

Max marks 100

- Attempt all questions in order.
- Each question carries 10 marks.
- Answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page.

1. a) What are the stages of lactogenesis? (3+3+4)
b) What are the causes of lactation failure?
c) Enumerate the steps to improve breastfeeding.

2. a) Pulse oximetry screening for Congenital Heart Disease (4+3+3)
b) Screening for developmental dysplasia of hip
c) Red reflex

3. a) Enumerate the benefits of delayed cord clamping (5+5)
b) What are the current recommendations for term & preterm infants?

4. a) What are the diagnostic criteria for MISC – N? (5+5)
b) Describe the management

5. Discuss in detail first and second trimester prenatal tests that are done for diagnosis of aneuploidy in fetus. (10)

6. a) What is the mechanism of bilirubin induced neurological dysfunction (BIND) (3+4+3)
b) Describe the clinical syndrome
c) Describe the MRI findings
7. a) Enumerate the role of Point of care Ultrasound in Neonatology (5+5)
b) Write the parameters of hemodynamic significant PDA
8. a) Mention the phases of fetal lung development (5+5)
b) Role of antenatal steroids in a late preterm delivery
9. Elaborate briefly on the terms given below (4+3+3)
a) Forest Plot
b) Bias
c) PICO
10. A 32 weeks preterm baby was discharged at 1.64 kg, at a corrected age of 34 weeks. (5+5)
Baby was 1.4kg at 2 weeks after discharge.
a) Enumerate the causes of post natal growth failure.
b) Explain the management.

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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) High levels of PAPP -A is seen in which condition?

- a) Twin pregnancy
- b) Fetal growth restriction
- c) Gestational hypertension
- d) Aneuploidy

2) If fats are not supplemented in extreme preterm, in how many days essential fatty acid deficiency develops?

- a) 3 days
- b) 7 days
- c) 21 days
- d) 14 days

3) Of the following, the mediator most responsible for the normal pulmonary vascular transition at birth is?

- a) Endothelin -1
- b) Leukotriene
- c) Nitric oxide
- d) Thromboxane

4) According to NRP, what is the targeted oxygen saturation at 5 minutes after birth for a term baby?

- a) 65 to 70 %
- b) 70 to 75%
- c) 75 to 80%
- d) 80 to 85 %

✓ 5) At what distance an ophthalmoscope is to be held from the baby to check for the red reflex?

- a) 10 to 12 inches
- ✓ b) 12 to 18 inches
- c) 8 to 10 inches
- d) 18 to 20 inches

6) A 20 days old male baby presents with history of recurrent oral thrush and eczematous skin rash, The WBC counts are persistently low with normal morphology. Nitroblue tetrazolium test is negative. The most likely diagnosis is ,

- a) Chronic granulomatous disease
- b) Chediakk Higashi syndrome
- ✓ c) Severe combined immunodeficiency syndrome
- d) Leucocyte adhesion deficiency

7) Which is the component of milk that varies most with maternal diet?

- a) Immunoglobulin
- ✓ b) Vitamins
- c) Proteins
- d) Lactose

8) The earliest indicator of osteopenia of prematurity is

- a) Decreased alkaline phosphatase
- ✓ b) Decreased phosphorous concentration
- c) Decreased calcium
- d) None of the above

✓ 9) A preterm baby has low T4, normal TSH, normal thyroid imaging, what is your diagnosis?

- a) Thyroid dysgenesis
- b) Dyshormogenesis
- ✓ c) Hypothyroxinemia of prematurity
- d) Iodine deficiency

10) Fortification of human milk based on the macronutrient component of breast milk is termed as ?

- a) Standard fortification
- b) Adjustable fortification
- c) Targeted fortification
- d) None of the above

11) A term well appearing baby has platelet count of 10,000 on first day of life. PT and aPTT are normal. Mother platelet count is normal what is your diagnosis ?

- a) Alloimmune thrombocytopenia
- b) Autoimmune thrombocytopenia
- c) Congenital infections
- d) Vitamin K deficiency bleeding .

12) Which of the following malformation in a newborn is specific for maternal insulin dependent diabetes mellitus?

- a) Transposition of great arteries
- b) Caudal regression
- c) Holoprosencephaly
- d) Meningomyelocele

13) Which of the following is the principle mode of heat exchange in an infant incubator?

- a) Radiation
- b) Evaporation
- c) Convection
- d) Conduction

14) Standard reporting guidelines for meta analysis is called

- a) PRISMA
- b) STROBE
- c) CONSORT
- d) STARD

2/1/14

15) A 1kg baby born at 32 weeks gestation, developed tender and distended abdomen; also has intramural gas on AXR – Stage the NEC as per modified Bell criteria

- a) 2A
- b) 2B
- c) B1
- d) 1A

16) What is Quintero staging used for ?

- a) NEC
- b) HIE
- c) TTTS
- d) CHD

17) Dose of Alprostadil is

- a) 5-10 mcg/kg/min
- b) 0.5-1 mcg/kg/min
- c) 0.005-0.01 mcg/kg/min
- d) 0.05-0.1 mcg/kg/min

18) When do you start cotrimoxazole for baby of HIV positive mother?

- a) At birth
- b) 6wks
- c) 12wks
- d) 6months

19) All of the following maternal infections have been associated with microcephaly in the fetus except?

- a) Zika virus
- b) CMV infection
- c) Hepatitis B
- d) Rubella

20) What is the calorie content of 10mL of 20% intralipid solution?

- a) 9 kcal
- b) 4 kcal
- c) 10 kcal
- d) 5 kcal

21) Which bone is fractured during labor and delivery more frequently than any other bone?

- a) Humerus
- b) Femur
- c) Clavicle
- d) Radius

22) You are asked to review a 2 day old term baby because of poor feeding and bilious vomiting. 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) Plain Xray abdomen
- d) Ultrasound abdomen

23) Supravalvular aortic stenosis is a teratogenic effect of which of the following agents?

- a) Topiramate
- b) Vitamin D
- c) Statins
- d) Busulfan

24) Which of the following is *false* about skin care of preterm babies?

- a) Infants born at less than 30 weeks have lesser number of layers of stratum corneum as compared to term babies
- b) Preterm skin has less collagen as compared to term babies
- c) Mild alkaline soap is suitable for skin care
- d) None of the above

25) The most common subtype of epidermolysis bullosa is

- a) Dystrophic type
- b) Junctional type
- c) Simplex type
- d) Herlitz type

26) Auditory brainstem response for hearing screening in neonates is reliable after what gestation age?

- a) 30- 32 weeks
- b) 34 weeks
- c) 36 weeks
- d) 38 weeks

27) In a ventilated neonate, for a given MAP (mean airway pressure), which of the following interventions leads to maximum rise in oxygenation?

- a) Increase in PEEP
- b) Increase in PIP
- c) Increase in flow rate
- d) Increase in T_i

28) Which of the following is true about cephalhematoma?

- a) Associated with subaponeurotic bleed
- b) Limited by suture lines
- c) Never associated with skull fractures
- d) All of the above

29) In Osteopenia of prematurity (OOP), a loss of up to ___% of bone mineralization can occur without radiographic changes.

- a) 10%
- b) 25%
- c) 40%
- d) 60%

30) Which one of the following is not the role of institutional Ethics committee?

- a) Develop and rectify institutional guidelines
- b) Act as an advisory and consultative body
- c) Review and approve research proposals
- d) Over-ride the parent's wishes to continue treatment
- e) Resolves differences of opinion between staff over continuing treatment of patient

31) Indications for chorionic villous sampling include all except?

- a) Suspected congenital infection
- b) Suspected rhesus disease
- c) Enzyme analysis for inborn errors of metabolism
- d) Chromosome analysis

32) Compared to term milk, preterm milk is

- a) Higher in lactose, vitamins and minerals
- b) Higher in protein, sodium and chloride
- c) Low in calcium, magnesium and phosphorous
- d) Lower in proteins, sodium and chloride

33) The physiology of RDS is best reflected by

- a) $V/Q > 1$ and High FRC.
- b) $V/Q > 1$ and High tidal volume
- c) $V/Q > 1$ and Low FRC
- d) $V/Q = 1$ and Normal FRC
- e) $V/Q < 1$ and Low FRC

34) Suppose the P-Value for a hypothesis test is 0.0304 using $\alpha = 0.05$, what is appropriate Conclusion?

- a) Reject the null hypothesis
- b) Reject the alternative hypothesis
- c) Fail to reject the null hypothesis
- d) Fail to reject alternative hypothesis

35) A baby is found to be irritable and jittery on the postnatal ward. The nurse collects a blood glucose level and result is 25 mg/dL. The mother is adamant that she wants to breastfeed the baby. Which one of the following is the most appropriate next step.

- a) Intravenous 10% dextrose at 60 ml/kg/day
- b) Attempt to breast feed
- c) NGT expressed breast milk (EBM)
- d) NGT formula feed
- e) IM Glucagon

36) A female infant is born with an omphalocele that was diagnosed antenatally. The infant was delivered vaginally at 38 weeks gestation. Birth weight was 4500 gm. The omphalocele was covered with a clear polythene film after birth and the baby has been admitted to the nursery for intravenous 10% dextrose while awaiting surgical consult. After insertion of the peripheral intravenous cannula a venous plasma glucose is collected and is 20 mg/dL. The baby's core temperature is measured at 36 °C . Which one of the following is most likely cause for the plasma glucose reading?

- a) Defect in Fatty acid oxidation
- b) Abnormal insulin secretion
- c) Delayed serum cortisol response
- d) Impaired glycogenesis

37) Premature closure of which of the following sutures can cause Scaphocephaly

- a) Sagittal suture
- b) Coronal suture
- c) Frontozygomatic suture
- d) Lambdoid suture

38) A female infant is born at 25 weeks gestation with birth weight of 800 GMS. She is born in good condition and requires no active resuscitation, but develops moderate respiratory distress requiring intubation and surfactant. She is extubated to CPAP the next day. She has some mild feed intolerance and apnea of prematurity but otherwise has an uncomplicated neonatal admission. Her cranial ultrasound are all reported as normal. She never required treatment for retinopathy of prematurity . Which one of the following neurological problem is most likely to be present on long term follow up?

- a) Hemiplegia
- b) Monoplegia
- c) Blindness
- d) Spastic diplegia
- e) Spastic quadriplegia

39) Which one of the following conditions is least likely to present as hydrops fetalis

- a) Alpha Thalassemia
- b) Beta Thalassemia
- c) ABO Incompatibility
- d) D Rhesus iso immunization
- e) Twin to twin transfusion

40) In contrast to " classic" BPD the "new" BPD in the more contemporary clinical setting is characterized by different histopathological findings on examination of lung tissue .The most striking abnormality in the lungs of infants who have new BPD is

- a) Decrease in alveolar septation .
- b) Diffuse leukocytes infiltration
- c) Epithelial squamous metaplasia
- d) Hypertrophy of airway smooth muscles
- e) Lung parenchymal fibrosis

41) Approximately 10% of infants born with congenital diaphragmatic hernia (CDH) have significant heart defects. The most common congenital heart defect associated with CDH is

- a) Aortic arch obstruction
- b) Tetralogy of fallout
- c) TAPVC
- d) TGA
- e) VSD

42) The causes of delayed passage of meconium in term neonate are all except

- a) Hirschsprung disease
- b) Hyperthyroidism
- c) Meconium ileus
- d) Meconium plug syndrome
- e) Intestinal obstruction

43) The plasma constituent most commonly implicated in the pathogenesis of transfusion- related acute lung injury are

- a) ABO alloantibodies
- b) Anti IgA antibodies
- c) Anti-neutrophil and anti HLA antibodies
- d) Anti T agglutinins
- e) Inflammatory interleukins

44) Grasp reflex is preserved in which of the following

- a) Erb's palsy
- b) Klumpke's palsy
- c) Total brachial plexus injury
- d) None of the above

45) Contaminated gauze in an NICU should be discarded in

- a) Yellow bin
- b) Blue bin
- c) Black bin
- d) White bin

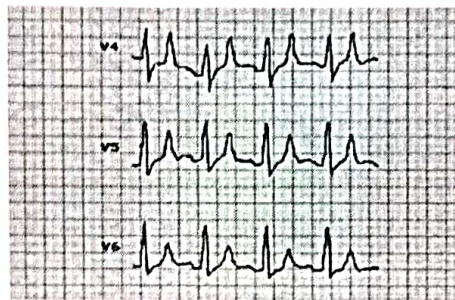
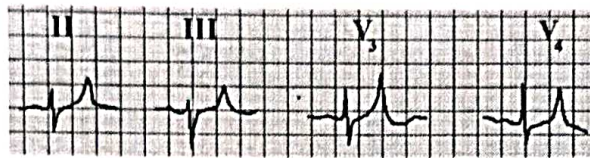
46) Which one of the following metabolic disturbance is found in Congenital Hypertrophic Pyloric Stenosis?

- a) Hypochloremic Metabolic Acidosis
- b) Hyperchloremic Metabolic Acidosis
- c) Hypochloremic Metabolic Alkalosis
- d) Hyperchloremic Metabolic Alkalosis

47) The most important and prominent action of inhaled Nitric Oxide is (are)

- a) Conversion of L-Arginine to L-Citrulline
- b) Conversion of GTP to cGMP
- c) Conversion of oxyhemoglobin to methemoglobin
- d) Reducing incidence of BPD
- e) All of the above

48) Based on the ECG tracing displayed below, what is the most likely electrolyte disturbance?



- a) Hyponatremia
- b) Hyperkalemia
- c) Hypocalcemia
- d) Hypokalemia
- e) Hypercalcemia

49) The treatment of choice for neonates with uncomplicated meconium ileus is

- a) Observation.
- b) Emergency laparotomy, bowel resection and Bishop-Koop enterostomy
- c) Intravenous hydration and Gastrografin enema
- d) Emergency laparotomy, bowel resection and anastomoses
- e) Sweat chloride test and pancreatic enzyme therapy

50) Pulmonary vascularity is increased in all of the following except

- a) TAPVR
- b) Tricuspid atresia
- c) TGV
- d) Hypoplastic left heart