

MARKS OBTAINED \_\_\_\_\_



**NNF Neonatal Doctor's Fellowship Examination October 2017**

Theory Paper 1

Multiple Choice Questions

Roll No \_\_\_\_\_

Duration– 90 Minutes Maximum Marks: 100

*General Instruction: For Wrong answers 25% of marks allotted to that question shall be deducted*

***THE BOOKLET IS TO BE RETURNED BACK FOR EVALUATION***

*Single response type: Each question carries 1 mark*

Write the most appropriate answer in the box provided

1. The following is the best proven method for routine hand hygiene in the NICU
- a. Alcohol hand rub for 30 seconds
  - b. Handwash with soap and water for 1 min
  - c. Povidone iodine based handrub for 30 seconds
  - d. Chlorhexidine based handrub for 30 seconds

2. A term IUGR baby at birth was noted to have petechial rash, hepatosplenomegaly and a PDA. The most likely diagnosis in this baby is
- a. Inborn error of metabolism
  - b. Neonatal sepsis
  - c. Congenital rubella syndrome
  - d. Kernicterus



3. The following chest x ray shows
- a. Severe RDS due to surfactant deficiency
  - b. Bilateral pleural effusion due to hydrops fetalis
  - c. Bilateral pneumothorax
  - d. Congenital lung malformation



4. Identify the wrong statement

- a. Early skin to skin contact must be initiated in all normal and caesarean deliveries
- b. Delayed cord clamping for 60 sec must be done for both term and preterm babies
- c. Polythene cling wrap should be used for thermoregulation in the delivery room in preterm babies < 28 wks gestation
- d. The umbilical cord should be cleaned with 70% isopropyl alcohol in all neonates at birth.

5. The following chest x ray shows

- a. Esophageal atresia with TEF
- b. Congenital diaphragmatic hernia left
- c. Pneumothorax left
- d. Congenital lung malformation



6. Indications for starting CPAP are following, EXCEPT :

- a. Respiratory distress
- b. Recurrent apneas
- c. Post extubation
- d. Poor respiratory efforts

7. An arterial blood gas with a pH 7.23, PaO<sub>2</sub> 65mm of Hg, PCO<sub>2</sub> 50mmg of Hg, HCO<sub>3</sub> 15meq/l would indicate

- a. Respiratory acidosis
- b. Metabolic acidosis
- c. Combined respiratory and metabolic acidosis
- d. Respiratory acidosis with metabolic alkalosis

8. Secondary surfactant deficiency occurs in

- a. Pneumonia
- b. MAS
- c. Birth asphyxia
- d. All the above

9. The mode of ventilation in which there is synchronization of expiration is

- a. SIMV
- b. Assist control
- c. Pressure support
- d. High frequency ventilation

10. The normal tidal volume of a 3 kg term neonate would be

- a. 18-24ml
- b. 30-36ml
- c. 42-48ml
- d. 54-60ml

11. The single most important factor responsible for hypoxemia in HMD is

- a. Right to left shunt at atrial level
- b. Right to left shunt through ductus
- c. Ventilation perfusion mismatch
- d. Increased diffusion gradient at the alveolar level

12. Following clinical features suggest diagnosis of PPHN ,EXCEPT:

- a. Labial cyanosis
- b. Response to NO
- c. SpO<sub>2</sub> difference of 10% between right upper limb and lower limb
- d. BP difference of 10mmHg right upper limb and lower limb

13. The best effects of surfactant are seen when it is given

- a. At birth before the first breath
- b. Early rescue
- c. Delayed rescue
- d. In utero

14. Following are the Risk factors for CLD, EXCEPT:

- a. Extreme prematurity
- b. PDA
- c. Volutrauma
- d. Antenatal steroids

15. Most common cause of respiratory distress in a term neonate

- a. HMD
- b. MAS
- c. TTNB
- d. Pneumonia

16. The pressure limit for endotracheal tube suction is

- a. 50mm of Hg
- b. 100mm of Hg
- c. 150 mm of Hg
- d. 200 mm of Hg

17. Of the following which is used for analgesia of a ventilated neonate

- a. Fentanyl
- b. Morphine
- c. Both
- d. None

18. The factors which affect the interpretation of an arterial blood gas are

- a. Air bubble in the arterial sample
- b. Venous admixture
- c. Excess heparin
- d. All the above

19. Appropriate ventilatory adjustment for management of PIE are

- a. Decrease PEEP
- b. Increase  $T_i$
- c. decrease in rates to maintain  $PCO_2$  between 35 to 45mm of Hg
- d. Increase flow rate

20. Interpret pH- 7.20,  $PaO_2$  – 75mm of Hg,  $PCO_2$  60mm of Hg,  $HCO_3$  20meq/l and base excess –5meq/l

- a. Metabolic acidosis
- b. Respiratory acidosis
- c. Metabolic and respiratory acidosis
- d. Respiratory acidosis and metabolic alkalosis

21. Most cases of IVH in neonates manifest at

- a. Birth
- b. 0 to 72 hrs
- c. 3 to 7 days
- d. 7 to 14 days

22. The most critical factor in the development of RDS in the preterm neonate is:

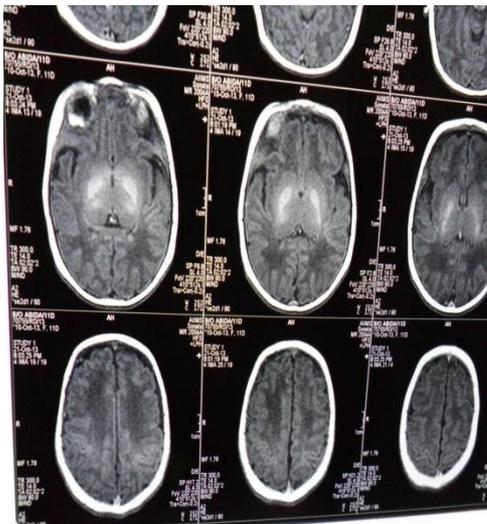
- a. Immature composition and biophysical function of surfactant.
- b. Leaking epithelium/endothelium barrier from lung injury.
- c. Low surfactant lipid pool size.
- d. Saccular versus alveolar stage of lung development.

23. The clinical signs of PDA include a systolic murmur at the left upper sternal edge, increased precordial impulses, and bounding peripheral pulses. Of the following, these clinical signs of PDA most typically manifest:

- a. At birth.
- b. 1 to 2 days after birth.
- c. 3 to 4 days after birth.
- d. 5 to 6 days after birth

24. The following MRI Brain image shows:

- a. Hypoglycemic brain injury
- b. Asphyxial brain injury in the basal ganglia
- c. Bilateral hyperintensity in basal ganglia in kernicterus
- d. Preterm brain injury



25. Following are primary neural tube defects ,EXCEPT:

- a. Meningomyelocele
- b. Anencephaly
- c. Encephalocele
- d. Lipomeningocele

26. In transport of neonate with duct dependent congenital heart disease

- A. Milrinone initiated before transfer
- B. Sildenafil initiated before transfer

C. Prostaglandin initiated before transfer

D. None of above

27. Which of the following chart is used for Absolute neutrophil count in preterm neonates?

a. Monroe's chart

b. Rawling chart

c. Mouzinho's chart

d. Zubrow's chart

28. Who is known as 'Father of Neonatology'? .....

29. Which subtype of Glycogen storage disorder can present with hydrops fetalis? \_\_\_\_\_

30. Below which gestational age palivizumab is used? \_\_\_\_\_

31. The conformational change in bilirubin-albumin complex as a explanation of the cephalocaudal progression of jaundice was suggested by :

a) Krammer

b) Knudsen A

c) Maisels MJ

d) Hoffman DJ

32. Which sensation is first to develop in a fetus:

a. Pain

b. Touch

c. Smell

d. Taste

33. Recommended sound level in NICU is:

a. 50 dBA

b. 60 dBA

c. 40 dBA

d. 70 dBA

34. Most common refractory error seen in preterm neonate

e. Myopia

f. Hyperopia

g. Astigmatism

h. Presbyopia

35. Extended duration KMC refers to KMC for a duration of:

- a. 4 hr
- b. 5-8 hr
- c. 9-12 hr
- d. >12hr

36. In Twin to Twin transfusion syndrome Hb conc differs between identical twins by more than

- a. 3 gm%
- b. 4gm%
- c. 5gm%
- d. 6gm%

37. Which electrolyte abnormality leads to 'Meconium plug syndrome' in neonates :

- a) Potassium
- b) Magnesium
- c) Calcium
- d) Selenium

38. Which nutrient is inappropriately high in HMF

- a) Vit.A
- b) Vit.K
- c) Vit.E
- d) Vit.D

39. 1 mm Hg change in PaCO<sub>2</sub> results in what % change in CBF (cerebral blood flow):

- a) 1%
- b) 2%
- c) 3%
- d) 4%

40. Recurrence rate of Breast milk jaundice in future pregnancies (%)

- a) 30%
- b) 50%
- c) 70%
- d) 90%

41. Which drug has been approved for treatment of ROP

- a) Bevacizumab
- b) Palivizumab
- c) Natalizumab
- d) Daclizumab

42. According to recent oxygen trial (NEOPROM) target saturation should be

- a) 80-92%
- b) 88-92%
- c) 85-95%
- d) 91-95%

43. Drug of choice for MSUD is:

- a) Riboflavin
- b) Thiamine
- c) Niacin
- d) Pyridoxine

44. Which IEM mimics DOWN syndrome ?

- a) Refsum disease
- b) Zellweger syndrome
- c) Fatty acid oxidation defect
- d) PDH deficiency

45. Myelination is completed by what age ?

- a) 2yr
- b) 5yr
- c) 7yr
- d) 9yr

46. Supraventricular tachycardia is characterized by all of the following EXCEPT:

- a) Abrupt onset and cessation
- b) Re-entry using an accessory pathway mechanism
- c) Heart failure
- d) Heart rate varyig with changes in autonomic tone

47. Following are classified as Disorders of Sexual Development, EXCEPT:

- a) Apparently female appearance with enlarged clitoris or inguinal hernia
- b) Assymetry of labioscrotal folds with or without cryptorchidism
- c) Penile hypospadias with bilateral non-palpable testis
- d) Penile hypospadias with unilateral non-palpable testis

48. The three cardinal signs in renal vein thrombosis in a neonate are

- a) Macroscopic hematuria, Abdominal mass, Thrombocytopenia
- b) Polyurea, Macroscopic hematuria, Hypertension
- c) Microscopic Hematuria, Polyurea, Hypertention
- d) Macroscopic Hematuria, Abdominal mass, Azotemia

49. A 39 weeks newborn baby born to mother with uterine rupture. Baby didn't cried at birth and required delivery room resuscitation. On examination in NICU: stretch reflexes are absent, there is strong distal flexion, miosis and profuse bronchial secretions. State his neuroencephalopathic staging based on Sarnat and Sarnat

- a) Stage I
- b) Stage II
- c) Stage III
- d) Stage IV

50. A 30 weeks male baby weighing 920 grams was born to a mother with severe Preeclampsia. The Doppler was suggestive of REDF in umbilical artery. On day 2 of life this baby presents with temperature instability, apnea, hypotension, metabolic acidosis, abdominal cellulitis, portal vein gas on the abdominal x ray, definitive ascitis. What stage of Bells stage does he belong to?

- a) IIIB
- b) IIA
- c) IB
- d) IIIA

51. Which of the following is/are indications to provide CPAP

- a) Type III TEF
- b) Stage IIb NEC
- c) Meconium aspiration syndrome
- d) Respiratory distress syndrome with transient circulatory disturbance

52. Embryonic Hb Gower 2 consists of :

- a)  $\beta_2\gamma_2$
- b)  $\beta_2\epsilon_2$
- c)  $\alpha_2\gamma_2$
- d)  $\alpha_2\epsilon_2$

53. Virchow's triad includes:

- a) RBC membrane disruption
- b) WBC membrane disruption
- c) Platelet membrane disruption
- d) Endothelial disruption

54. A 28 weeks newborn baby born to primigravida mother with antepartum hemorrhage is having respiratory distress soon after birth. RR= 74/min, FiO<sub>2</sub> requirement of 50%, severe lower chest retractions, audible grunt present, barely audible breath sounds, marked xiphoid retractions. State the Silverman score

- a) Silverman score atleast 4
- b) Silverman score atleast 6
- c) Silverman score atleast 8
- d) Silverman score atleast 9

55. The most common cause of polycythemia in term infant is :

- a) Growth retardation
- b) Delayed cord clamping
- c) Maternal smoking
- d) Toxaemia of pregnancy

56. Which of the following interventions are grouped under developmentally supportive care, EXCEPT:

- a) Protected sleep
- b) Family centred care
- c) Asepsis routines
- d) Healing environment

57. Which of the following conditions are associated with polyhydramnios, EXCEPT:

- a) Neural tube defect
- b) Bartter Syndrome
- c) Maternal diabetes
- d) Renal malformations

58. Which micronutrient is considered responsible for Benign Idiopathic Neonatal Seizure (BINS)?

- a) Mg
- b) Se
- c) Zn
- d) Mo

59. Which electrolyte abnormality is associated with Blue Diaper syndrome? \_\_\_\_\_

60. A small for date baby is at risk for all of these complications except

- a. Hyaline membrane disease
- b. Birth asphyxia
- c. Polycythemia
- d. Hypoglycemia

61. Surfactant for host defense function are

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

62. Calculate glucose delivery rate in mg/kg/minute for a neonate receiving 100cc/kg of 10% dextrose? \_\_\_\_\_

63. Identify the deformity? \_\_\_\_\_



64. What is significant hypothermia? \_\_\_\_\_

65. What is the target preductal saturation for Term baby at 4 minutes of life? \_\_\_\_\_

66. The difference in arterial vs. venous blood pH in newborn is:

- A. 0.03
- B. 0.05
- C. 0.07

D. 0.09

67. Discontinuation of resuscitative measures may be appropriate if spontaneous circulation is not achieved by (minutes):

A. 5

B. 10

C. 15

D. 30

68. The rate of bilirubin production can be assessed by measuring rate of production of:

A. Carbon monoxide

B. Carbon dioxide

C. Carbon

D. Oxygen

69. Neonatal cholestasis can be caused by all of the following EXCEPT:

a. Sepsis

b. Choledochal Cyst

c. Neonatal hepatitis

d. Crigler Najjar syndrome

70. In infants of diabetic mothers, lungs are considered mature when L/S ratio is more than \_\_\_\_\_

71. Bilirubin encephalopathy produces which type of cerebral palsy?

(A) spastic

(B) akinetic

(C) choreoathetoid

(D) cerebellar

72. Phototherapy converts unconjugated bilirubin to more soluble bilirubin by :

(A) E isomerisation

(B) Z isomerisation

(C) H isomerisation

(D) P isomerisation

73. Which of congenital heart disease are associated with Turner syndrome?

- (A) Pulmonary valve dysplasia
- (B) PDA
- (C) coarctation of aorta
- (D) Congenital mitral stenosis

74. All of the following may show large anterior fontanelle except?:

- (A) Prematurity
- (B) pyknodysostosis
- (C) Kenny syndrome
- (D) William's syndrome

75. A 38 year old lady has a daughter who has Down's syndrome. The father has 21/21 balanced translocation. The risk of Down's syndrome in the next child is :

- (A) <5%
- (B) 25%
- (C) 50%
- (D) 10

76. All of the following are causes of neonatal polycythemia except

- (A) Maternal diabetes
- (B) Neonatal hyperthyroidism
- (C) SGA
- (D) Neonatal hemosiderosis

77. A term well baby with birth weight of 2.5 kg is born to mother having history of pulmonary tuberculosis 5 years back. Mother was treated adequately and during current pregnancy did not have any symptoms. What will be your plan of management regarding the baby ?

- (A) Get a Mantoux test and start on isoniazid and rifampicin prophylaxis
- (B) Isolate the baby from mother, start prophylaxis with isoniazid and rifampicin
- (C) Send Gastric juice for Acid fast bacilli, Chest x-ray and lumbar puncture and treat if baby is infected
- (D) Do not isolate the baby from mother, and no active intervention needed

78. NBS (New Ballard Scoring) is an important bed side tool for assessing gestational age. Out of the physical maturity criteria in NBS, which one has got a maximum score of 5 ?

(A) Skin

(B) Lanugo

(C) Plantar surface

(D) Breast

79. In a city of total population 1,00,000 during year 2012, 2000 babies were delivered. Of these 200 neonates were born dead. Among 1800 live births, 400 weighed less than 2.5 kg at birth. Of these 36 died within first 28 days and 18 died after 28 days but before reaching their first birthday. What is neonatal mortality rate for this city ?

(A) 18

(B) 20

(C) 27

(D) 30

80. Hand washing with soap and water is superior to Alcohol based hand rub in all of the following scenarios except:

(A) When hands are visibly soiled

(B) After removing gloves

(C) Using toilet

(D) Routine patient contact

81. Figure of 8 configuration on chest radiograph is seen in which one of the following congenital heart disease :

(A) Tetralogy of Fallor

(B) Total Anomalous Pulmonary Venous Drainage

(C) Endocardial cushion defect

(D) Ebstein's malformation

82. Midpoint of the body of newborn is

- (A) *Public symphysis*
- (B) *Just above public symphysis*
- (C) *Umbilicus*
- (D) *Just above umbilicus*

83. Which one is abnormal ?

- (A) *Inverted T wave in V4R in a 1 month old baby*
- (B) *Upright T wave in V3R in a day 10 old neonate*
- (C) *QRS frontal plane axis of 150° in a newborn*
- (D) *R:S ratio > 1 in V5 in newborn*

84. insensible water loss can be reduced by following measures except? :

- (A) *Keeping infants in high humidity*
- (B) *Infant is clothed*
- (C) *covering with acrylic inner heat shield*
- (D) *All of the above*

85. The most common clinical complication noted after umbilical artery catheterization is:

- (A) *Hematuria*
- (B) *Hypertension*
- (C) *Necrotizing enterocolitis*
- (D) *Leg blanching*

86. use of lithium during pregnancy can cause which heart disease?

- (A) *VSD*
- (B) *ASD*
- (C) *Right sided aortic arch*

(D) *Ebstein's malformation*

87 Which segment of the fetal circulation contains the highest O<sub>2</sub> ?

(A) *Right atrium*

(B) *Right ventricle*

(C) *Left ventricle*

(D) *Umbilical artery*

88. Ferric chloride test is positive in urine screen of:

(A) *Organic aciduria*

(B) *Amino-aciduria*

(C) *Congenital lactic acidemia*

(D) *Peroxisomal disorder*

89. all of the following can cause spina bifida in newborn ,given during pregnancy except?

(A) *Sodium valproate*

(B) *methotrexate*

(C) *carbamazepine*

(D) *cocaine*

90. Sample size in a clinical trial is greater in the following situations except:

(A) *If the effect size of interest is large*

(B) *If the standard deviation of the variable of interest is large*

(C) *If beta error of the study is small*

(D) *If alpha error is small*

91 A preterm 30 wk, 1.4 kg neonates was ventilated for RDS & was on SIMV mode with settings of PIP 16 cm/PEEP 5 cm/rate 40 per min/Ti 0.35 sec/FiO<sub>2</sub> 30%<sup>A</sup> at 48 hrs of life. ABG showed Ph 7.36/PCO<sub>2</sub> 37/pO<sub>2</sub> 72/BE 2/HCO<sub>3</sub> 20. At 72 hrs of life, there was a sudden deterioration with poor peripheral perfusion, increased respiratory distress, HR 180 per min & bounding peripheral pulses. The most likely cause could be :

(A) *Intra ventricular hemorrhage*

(B) *Pulmonary hemorrhage*

(C) *Opening of Ductus Arteriosus*

(D) *ET tube blockage*

92. *In a premature baby with Robin syndrome, the baby should be nursed in which position?*

(A) *Upright posture*

(B) *Supine posture*

(C) *prone position*

(D) *Turned to one side*

93. *A 1.0 kg preterm infant is edematous on examination. The serum Na is 136 & creatinine is 1.4 mg/dl. Urine output for 24 hr is 144 ml. The urine Na is 40 mEq/L and creatinine is 14 mg/dl. The creatinine clearance would be :*

(A) *0.2 ml/min*

(B) *0.5 ml/min*

(C) *1 ml/min*

(D) *1.5 ml/min*

94. *Which complication is most frequently seen with high frequency ventilation?*

(A) *BPD*

(B) *pneumothorax*

(C) *interstitial emphysema*

(D) *intracranial haemorrhage*

95. *The following critical cardiac conditions may improve after administration of prostaglandin except:*

(A) *Hypoplastic left heart syndrome with patent foramen ovale*

(B) *Hypoplastic left heart syndrome with restrictive foramen ovale*

(C) *Total anomalous pulmonary venous return*

(D) *Transposition of great arteries with ventricular septal defect*

96. A neonate born by forceps vaginal delivery at 38 wk gestation develops focal seizures at 18 hours of age, bulging fontanel and unequal pupils. Cranial USG is not revealing any obvious lesion. What are you likely to find in CT brain ?

(A) Sub arachnoid hemorrhage

(B) Intra ventricular bleed

(C) Sub dural bleed

(D) Sub galeal bleed

97. The mother of a 2 week old infant reports that her baby sleeps most of the day, she has to awaken her every 4 hours to feed and the infant has persistently hard stool . On examination, HR 100/m and temp. is 35.5 C, baby is still jaundiced and has a distended abdomen. What is the most appropriate diagnostic test ?

a) Screening tests for Inborn error of metabolism

b) Sepsis screen and blood culture.

c) Total and direct serum bilirubin

d) T4 and TSH

98 in babies which of the following is clinical manifestation of hypermagnesemia?

a) CNS depression and respiratory depression

b) exaggerated DTR and hypertonicity

c) Hyperalert look

d) Jitteriness

99. Which of the following is not a recognized benefit of breast feeding

a. Reduced risk of allergy in the later life

b. Reduced risk of NEC

c. Reduced risk of breast cancer in mother

d. Reduced risk of hemorrhagic disease of newborn

100. Which of the following is not a clinical test for detection of development dysplasia of hip

e. Ortoloni test

f. Barlow test

g. Galeazzi test

h. FABRE test