

**JEMAS(PG)-2024** **QB No: 4101400001**  
**Subject: Fellowship in Critical Care Technology (FCCT)**

**Duration: 90 minutes**

**No of MCQ: 100**

**Full Marks: 100**

**INSTRUCTIONS**

1. All questions are of objective type having four answer options for each.
2. **Category-1:** Carries **1** mark each and only one option is correct. In case of incorrect answer or any combination of more than one answer,  $\frac{1}{4}$  mark will be deducted.
3. Questions must be answered on OMR sheet by darkening the appropriate bubble marked A, B, C, or D.
4. Use only **Black/Blue ink ball point pen** to mark the answer by filling up of the respective bubbles completely.
5. Write Question Booklet number and your roll number carefully in the specified locations of the **OMR** sheet. Also fill appropriate bubbles.
6. Write your name (in block letter), name of the examination center and put your signature (as is appeared in Admit Card) in appropriate boxes in the **OMR sheet**.
7. The OMR sheet is liable to become invalid if there is any mistake in filling the correct bubbles for Question Booklet number/roll number or if there is any discrepancy in the name/ signature of the candidate, name of the examination center. The OMR sheet may also become invalid due to folding or putting stray marks on it or any damage to it. The consequence of such invalidation due to incorrect marking or careless handling by the candidate will be sole responsibility of candidate.
8. Candidates are not allowed to carry any written or printed material, calculator, pen, log-table, wristwatch, any communication device like mobile phones, bluetooth devices etc. inside the examination hall. Any candidate found with such prohibited items will be **reported against** and his/her candidature will be summarily cancelled.
9. Rough work must be done on the Question Booklet itself. Additional blank pages are given in the Question Booklet for rough work.
10. Hand over the OMR sheet to the invigilator before leaving the Examination Hall.
11. Candidates are allowed to take the Question Booklet after examination is over.

Signature of the Candidate: \_\_\_\_\_

(As in Admit Card)

Signature of the Invigilator: \_\_\_\_\_

ROUGH WORK ONLY

## FCCT

1. Colour of oxygen cylinder is:
  - (A) Black with white collar
  - (B) Blue with white collar
  - (C) Yellow with white collar
  - (D) White
2. The following laboratory determinants is abnormally prolonged in ITP:
  - (A) APTT
  - (B) Prothrombin time
  - (C) Bleeding time
  - (D) Clotting time
3. Which one of the following devices provides fixed performance oxygen therapy?
  - (A) Nasal cannula
  - (B) Venturi mask
  - (C) O<sub>2</sub> by T-piece
  - (D) Edinburgh masker
4. Causes of DIC include:
  - (A) Leukemia
  - (B) Massive transfusion
  - (C) Abruptio placentae
  - (D) All of the above
5. Which of the following is not an indication for endotracheal intubation?
  - (A) Maintenance of a patent airway
  - (B) To provide positive pressure ventilation
  - (C) Pulmonary toilet
  - (D) Pneumothorax
6. The most sensitive test for DIC is:
  - (A) Serum fibrinogen levels
  - (B) Serum levels of fibrin degradation products
  - (C) Prolonged PT and PTT
  - (D) Thrombocytopenia
7. Soda lime is used in closed anaesthesia circuit:
  - (A) To absorb carbon dioxide
  - (B) To reduce pollution
  - (C) To absorb moisture in the circuit
  - (D) To filter the anesthetic gases

8. The following is not true of platelet transfusion:
- (A) Useful in ITP
  - (B) Used in DIC
  - (C) Effective for 9-10 days
  - (D) Effect decrease with repeated usage
9. True about endotracheal cuff:
- (A) Low volume, high pressure
  - (B) Low volume, low pressure
  - (C) High volume, low pressure
  - (D) High volume, high pressure
10. Oxygen carrying capacity of the blood in dissolved form depends on:
- (A) Partial pressure of oxygen in blood
  - (B) Atmospheric pressure of oxygen
  - (C) Both the above
  - (D) None of the above
11. Causes of Deep venous thrombosis include all of the following, except:
- (A) Diabetes Mellitus
  - (B) Oral contraceptives
  - (C) Paroxysmal Nocturnal Hemoglobinuria (PNH)
  - (D) Prolonged surgery
12. Anesthetic agent with vasoconstrictor is contraindicated in:
- (A) Finger block
  - (B) Spinal block
  - (C) Epidural block
  - (D) Regional anesthesia
13. All of the following infections may be transmitted via blood transfusion, except:
- (A) Parvo B-19
  - (B) Dengue virus
  - (C) Cytomegalovirus
  - (D) Hepatitis G virus
14. What is true about pulse oximetry?
- (A) It is highly accurate at O<sub>2</sub> saturation < 70
  - (B) It is highly accurate at O<sub>2</sub> saturation > 70
  - (C) It monitors % of HB which is unsaturated with O<sub>2</sub>
  - (D) It is inaccurate as flow is sluggish
15. Which one of the following is not a component of airway maintenance?
- (A) Head tilt
  - (B) Jaw thrust
  - (C) Chin lift
  - (D) Tongue pull

16. Which of the following is the least likely complication after massive blood transfusion?
- (A) Hyperkalemia
  - (B) Citrate toxicity
  - (C) Hypothermia
  - (D) Metabolic Acidosis
17. All of the following are major complications of massive transfusion, except:
- (A) Hypokalemia
  - (B) Hypothermia
  - (C) Hypomagnesemia
  - (D) Hypocalcemia
18. Which of the following is not a cardiovascular monitoring technique?
- (A) Transesophageal echocardiography
  - (B) Central venous pressure monitoring
  - (C) Pulmonary artery catheterization
  - (D) Capnography
19. Which of the following investigations should be done immediately to best confirm a non- matched blood transfusion reaction?
- (A) Indirect Coomb's test
  - (B) Direct Coomb's test
  - (C) Antibody in patient's serum
  - (D) Antibody in donor serum
20. Which of the following is not a feature of DIC?
- (A) Prolonged PT and PTT
  - (B) Increased fibrin degradation products
  - (C) Thrombocytopenia
  - (D) Platelet function defect
21. Clinical criteria of brain death is all except:
- (A) Coma
  - (B) Absent brain stem reflex
  - (C) Absent spinal cord reflex
  - (D) Absent motor activity
22. Cryoprecipitate contains all except:
- (A) Factor VIII
  - (B) Factor IX
  - (C) Fibrinogen
  - (D) VWF

23. The narrowest part of larynx in infants is at the cricoid level. In administering anaesthesia, this may lead to all except:
- (A) Choosing a smaller size endotracheal tube
  - (B) Trauma to the subglottic region
  - (C) Postoperative stridor
  - (D) Laryngeal edema
24. In DIC which is false:
- (A) PT is prolonged
  - (B) APPT is normal
  - (C) Fibrinogen is decreased
  - (D) Thrombocytopenia
25. The most common cause of morbidity and mortality in patients undergoing major vascular surgery is:
- (A) Renal complications
  - (B) Thromboembolic phenomenon
  - (C) Coagulopathies
  - (D) Cardiac complications
26. Dengue shock syndrome occurs due to:
- (A) Super-imposed bacterial infection
  - (B) Capillary leak
  - (C) Addison's crisis
  - (D) Myocarditis
27. Intra-arterial injection of a drug will produce:
- (A) Mottling of limb
  - (B) Presence of compartment syndrome
  - (C) Absence of pulse in affected limb
  - (D) All of the above
28. Urgent management in a case of open pneumothorax is:
- (A) Urgent thoracotomy
  - (B) Immediate insertion of a chest drain
  - (C) Stuffing the wound with sterile gauze
  - (D) Administration of intravenous Normal Saline
29. Minimal 'starvation time' required in general anaesthesia:
- (A) 4 hours
  - (B) 8 hours
  - (C) 24 hours
  - (D) 36 hours

30. All of the following may cause giant 'a' wave in JVP except:
- (A) Tricuspid stenosis
  - (B) Pulmonary stenosis
  - (C) Pulmonary hypertension
  - (D) Aortic stenosis
31. Most common type of ECG rhythm at the time of cardiac arrest in adults is:
- (A) Ventricular tachycardia without pulse
  - (B) Ventricular fibrillation
  - (C) Asystole
  - (D) Pulseless electrical activity
32. C.V.P (Central Venous Pressure) and pulmonary wedge pressure give an accurate assessment of all the following except:
- (A) Tissue perfusion
  - (B) Volume depletion
  - (C) Volume overload
  - (D) Myocardial function
33. Whole blood is stored at:
- (A) 0 degree centigrade
  - (B) 4 degree centigrade
  - (C) 20 degree centigrade
  - (D) 37 degree centigrade
34. Normal left atrial pressure is:
- (A) 15 – 30 mm Hg
  - (B) 4 – 12 mm Hg
  - (C) 30 mm Hg
  - (D) None of the above
35. During cardiopulmonary resuscitation, external cardiac compression is given over:
- (A) Upper third of sternum
  - (B) Mid third of sternum
  - (C) Lower third of sternum
  - (D) Precordium overall
36. Fixed splitting of second heart sound is seen in:
- (A) Ventricular septal defect
  - (B) Atrial septal defect
  - (C) Ebsteins anomaly
  - (D) Tetralogy of Fallot

37. First step in CPR (cardio pulmonary resuscitation) should be:
- (A) IV adrenaline
  - (B) Intracardiac atropine
  - (C) Airway maintenance
  - (D) None of the above
38. Diaphragmatic rupture may result from:
- (A) Stab injury only
  - (B) Violent coughing
  - (C) Sudden increase in intra-thoracic pressure
  - (D) Sudden increase in intra-abdominal pressure
39. Heparin interferes with which of the following results of ABG:
- (A) PO<sub>2</sub>
  - (B) PCO<sub>2</sub>
  - (C) pH
  - (D) Anion gap
40. All of the following sounds are diastolic sounds, except:
- (A) S3
  - (B) S4
  - (C) Opening snap
  - (D) Ejection click
41. Mendelson's syndrome is:
- (A) Aspiration of gastric contents
  - (B) Aspiration of nasal mucus
  - (C) Hypersensitivity to inhalational anesthetics
  - (D) Faulty intubation syndrome
42. Mid-diastolic Murmur with presystolic accentuation is typically seen in:
- (A) Mitral stenosis
  - (B) Mitral Regurgitation
  - (C) Aortic stenosis
  - (D) MVP
43. Post-spinal headache is due to:
- (A) Injury to spinal cord
  - (B) CSF leak from dura
  - (C) Meningitis
  - (D) Raised intracranial pressure
44. A continuous murmur is heard in all of the following conditions except:
- (A) Ventricular septal defect with aortic regurgitation
  - (B) Patent ductus arteriosus
  - (C) Coronary arteriovenous fistula
  - (D) Venous hum

45. Which of the following surgical incisions is associated with the highest risk of postoperative pulmonary complications?
- (A) Vertical laparotomy
  - (B) Horizontal laparotomy
  - (C) Lateral thoracotomy
  - (D) Median sternotomy
46. Features in favour of ventricular tachycardia are all the following except:
- (A) AV dissociation
  - (B) Capture/fusion beats
  - (C) Good response to carotid sinus massage
  - (D) A history of myocardial infarction
47. All of the following are seen in cardiac tamponade except:
- (A) Electrical alternans
  - (B) Pulsus paradoxus
  - (C) Increased JVP
  - (D) Bradycardia
48. ECG feature of Hyperkalaemia is:
- (A) Flattened T wave
  - (B) ST depression
  - (C) Peaked T waves
  - (D) U waves
49. In the femoral triangle, femoral vein is:
- (A) Anterior to femoral artery
  - (B) Posterior to femoral artery
  - (C) Medial to femoral artery
  - (D) Lateral to femoral artery
50. Early complications of tracheostomy are:
- (A) Hemorrhage
  - (B) Displacement of tube or obstruction
  - (C) Surgical emphysema
  - (D) Tracheal stenosis
51. For foreign bodies retained in the larynx and causing choking , first line of management is:
- (A) Airway insertion
  - (B) Heimlich maneuver
  - (C) Heimlich valve
  - (D) Tracheostomy

52. Tall and peaked T waves in ECG are characteristic of:

- (A) Hypokalemia
- (B) Hyperkalemia
- (C) Hyponatremia
- (D) Hypocalcemia

53. Most common complication of femoral vein access is:

- (A) Infection
- (B) Hemorrhage
- (C) Deep vein thrombosis
- (D) Injury to artery and nerve

54. Most common complication of central venous catheter:

- (A) Local bleeding
- (B) Thrombosis
- (C) Catheter related infection
- (D) Pneumothorax

55. Low QRS voltage on ECG indicates:

- (A) Pulmonary embolism
- (B) Pericardial effusion
- (C) Cor pulmonale
- (D) Infective endocarditis

56. Acronym AMBU stands for:

- (A) Automated manual breathing unit
- (B) Artificial manual breathing unit
- (C) Artificial mechanical breathing unit
- (D) Automated mechanical breathing unit

57. ST elevation may be seen in all of the following conditions except:

- (A) Myocardial infarction
- (B) Coronary artery spasm
- (C) Constrictive pericarditis
- (D) Ventricular aneurysm

58. Why is a patient kept fasting before surgery:

- (A) To maintain a clear G.I.T in abdominal surgeries
- (B) To reduce the risk of aspiration
- (C) To decrease pressure on abdominal aorta
- (D) To prevent hyperglycemia

59. A person with mitral regurgitation and atrial fibrillation presents with syncope. On examination the person has a heart rate of 55. What is the most probable cause?
- (A) Digitalis toxicity
  - (B) Incomplete heart block
  - (C) Stroke
  - (D) Subarachnoid Haemorrhage
60. Drug of choice for Paroxysmal Supraventricular Tachycardia (PSVT) is:
- (A) Metoprolol
  - (B) Amiodarone
  - (C) Adenosine
  - (D) Lidocaine
61. Addition of epinephrine to lignocaine:
- (A) Increases distribution of LA
  - (B) Decreases absorption of LA
  - (C) Decreases duration of LA
  - (D) Increases metabolism of LA
62. In the treatment of severe bradycardia, all of the following can be the best modality of treatment except:
- (A) Atropine
  - (B) Pacing
  - (C) Isoproterenol
  - (D) Diltiazem
63. Most common type of ASD is:
- (A) Ostium primum
  - (B) Ostium secundum
  - (C) Sinus venosus type
  - (D) Endocardial cushion defect
64. All of the following clinical findings are consistent with severe mitral stenosis except
- (A) Atrial fibrillation
  - (B) Pulsatile liver
  - (C) Opening snap late after S2
  - (D) Pulmonary vascular congestion
65. In atrial septal defect the aorta is:
- (A) Small
  - (B) Normal
  - (C) Enlarged
  - (D) Aneurysmal

66. 100% oxygen improves cyanosis in all except:
- (A) Tetralogy of Fallot
  - (B) Bronchial asthma
  - (C) Eosinophilic pneumonia
  - (D) Interstitial lung disease
67. A 30-year-old male presents with severe pain chest, breathlessness, hypotension and ECG shows ST elevation in V3, V4, V5 and V6 leads. He will be best treated with:
- (A) Streptokinase
  - (B) t-PA
  - (C) Heparin
  - (D) PTCA
68. The most common location of ventricular septal defect is:
- (A) Perimembranous
  - (B) Muscular
  - (C) Doubly—committed subarterial
  - (D) Inlet septum
69. Mitral valve vegetations do not usually embolise to:
- (A) Lung
  - (B) Liver
  - (C) Spleen
  - (D) Brain
70. In MI, which enzyme is raised in 4 to 6 hrs. and decreases in 3 to 4 days:
- (A) SGOT
  - (B) LDH
  - (C) CPK
  - (D) SGPT
71. Pulmonary plethora is seen in all except:
- (A) TGA
  - (B) TOF
  - (C) TAPVC
  - (D) ASD
72. Sudden Cardiac Death (SCD) can occur in the following disease, except:
- (A) Prolonged Q-T syndrome
  - (B) W-P-W syndrome
  - (C) Ventricular septal defect
  - (D) Hypertrophic cardiomyopathy

73. Which of the following tests is used to detect reversible myocardial ischemia?
- (A) Angiography
  - (B) Thallium scan
  - (C) MUGA
  - (D) Resting Echocardiography
74. Blalock and Taussig shunt is done between:
- (A) Aorta to pulmonary artery
  - (B) Aorta to pulmonary vein
  - (C) Subclavian artery to pulmonary artery
  - (D) Subclavian artery to pulmonary vein
75. Internal Jugular vein lies:
- (A) Medial to carotid artery
  - (B) Lateral to carotid artery
  - (C) Anterior to carotid artery
  - (D) Posterior to carotid artery
76. Infective endocarditis is least likely to occur in:
- (A) Atrial septal defect
  - (B) Small ventricular septal defect
  - (C) Mitral valve prolapse
  - (D) Tetralogy of Fallot
77. Which of the following statements about Atherosclerosis is true?
- (A) Intake of Unsaturated Fatty Acids is associated with decreased risk
  - (B) Extent of lesions in veins is similar as that in arteries
  - (C) Thoracic Aorta is more commonly involved than abdominal aorta
  - (D) Hypercholesterolemia alone does not increase the risk of atherosclerosis.
78. Cardiac output is decreased in all except:
- (A) Dilated cardiomyopathy
  - (B) CCF due to mitral regurgitation in rheumatic heart diseases
  - (C) Pericardial effusion
  - (D) Pulmonary edema due to circulatory congestion in acute glomerulonephritis
79. Which of the following ECG findings is associated with acute myocardial Infarction?
- (A) Elevation of S wave
  - (B) Prolonged QT interval
  - (C) ST segment elevation
  - (D) Prolonged PR interval
80. The following features are true for tetralogy of Fallot, except:
- (A) Ventricular septal defect
  - (B) Right ventricular hypertrophy
  - (C) Atrial septal defect
  - (D) Pulmonary stenosis

81. All of the following causes death in coarctation of Aorta except:
- (A) Infective endocarditis
  - (B) CCF
  - (C) Intracranial hemorrhage
  - (D) Anterior MI
82. Bacterial endocarditis is most commonly caused by:
- (A)  $\alpha$ -Hemolytic Streptococci
  - (B)  $\beta$ -Hemolytic Streptococci
  - (C) Staphylococcus aureus
  - (D) Staph epidermidis
83. Enlarged pulsatile liver with ascites is typically seen in:
- (A) Tricuspid Regurgitation
  - (B) Mitral Regurgitation
  - (C) Mitral stenosis
  - (D) Pulmonary stenosis
84. Positive hepatojugular reflux may be found in conditions except:
- (A) Tricuspid regurgitation
  - (B) Right heart failure
  - (C) Decreased after load
  - (D) PS
85. In stable angina:
- (A) CK-MB is elevated
  - (B) Troponin I is elevated
  - (C) Myoglobin is elevated
  - (D) The levels of cardiac markers remain unchanged.
86. All of the following are cyanotic heart diseases, except:
- (A) TOF
  - (B) PDA
  - (C) Tricuspid Atresia
  - (D) Eisenmenger's complex
87. A 63 year old man present with a triad of angina, syncope and congestive heart failure.  
Which of the following valvular heart lesion can be suspected:
- (A) Mitral stenosis
  - (B) Tricuspid regurgitation
  - (C) Aortic stenosis
  - (D) Aortic regurgitation

88. The term ECMO stands for:
- (A) Extra Coronary Myocardial Oxygenation
  - (B) Extra Cardiac Mechanical Oxygenation
  - (C) Extra Corporeal Manual Oxygenation
  - (D) Extra Corporeal Membrane Oxygenation
89. Commonly used artery for invasive arterial pressure monitoring is:
- (A) Radial artery
  - (B) Brachial artery
  - (C) Subclavian artery
  - (D) Femoral artery
90. Streptokinase and Urokinase are contraindicated in:
- (A) Intracranial malignancy
  - (B) Pulmonary Embolism
  - (C) AV fistula
  - (D) Thrombophlebitis
91. Troponin – ‘T’ is a marker of:
- (A) Renal disease
  - (B) Muscular disease
  - (C) Cirrhosis of liver
  - (D) Myocardial infarction
92. All the following veins are used for percutaneous insertion of CVP canula excepting:
- (A) Internal jugular vein
  - (B) External Jugular vein
  - (C) Subclavian vein
  - (D) Femoral vein
93. A patient complains of intermittent claudication, dizziness and headache; likely cardiac lesion is:
- (A) TOF
  - (B) ASD
  - (C) PDA
  - (D) Coarctation of aorta
94. All of the following arteries are common sites of occlusion by atheroma except:
- (A) Left anterior descending
  - (B) Right coronary artery
  - (C) Circumflex coronary artery
  - (D) Marginal artery

95. Coarctation of Aorta is most commonly associated with:
- (A) Bicuspid Aortic valve
  - (B) Patent Ductus Arteriosus
  - (C) Ventricular Septal Defect
  - (D) Atrial Septal Defect
96. 65 years male had acute myocardial infarction 4 days ago. Now he complains of substernal chest pain with radiation into left arm and jaw. Most likely cause of the chest pain is:
- (A) Reinfarction
  - (B) Pericarditis
  - (C) Right ventricular infarction
  - (D) Rupture of the anterior myocardial wall
97. Which of the following is not present in cardiac tamponade?
- (A) Pulsus paradoxus
  - (B) Kussmaul's sign
  - (C) Pulmonary edema
  - (D) Hypertension
98. All of the following are used in the initial management of acute life threatening cardiogenic pulmonary edema, except:
- (A) Digoxin
  - (B) Morphine
  - (C) Furosemide
  - (D) Positive Pressure Ventilation
99. In an old patient, the best indicator of probability of developing cardiovascular disease can be assessed by:
- (A) LDL/HDL ratio.
  - (B) Triglycerides
  - (C) Total cholesterol
  - (D) Serum LDL
100. All of the following are risk factors for atherosclerosis, except:
- (A) Low HDL
  - (B) Increased waist-hip ratio
  - (C) Low fibrinogen
  - (D) High LDL