

**JEMAS(PG)-2024** **QB No: 4101700001**  
**Subject: M. Sc. in Critical Care Science (M. Sc CCS)**

**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

## M.Sc. CCS

1. Which mechanism of Phototherapy is chiefly responsible for reduction in Serum Bilirubin?
  - A. Photo-oxidation
  - B. Photo-isomerization
  - C. Structural Isomerization
  - D. Conjugation
2. A 4-year-old boy, presents in OPD accompanied by his parents. He has had foul smelling watery diarrhoea for the last 5 months. His height and weight are below 50<sup>th</sup> percentile. To estimate total body fat, a subscapular skinfold thickness is needed, what is the name of this device used to measure subscapular skin fold Thickness?
  - A. Vernier Calipers
  - B. Orchidometer
  - C. Shakir's tape
  - D. Harpenden Calipers
3. Which one of the following option is NOT a Major Jones criteria for diagnosis of acute rheumatic fever?
  - A. Migratory Polyarthritits
  - B. Carditis
  - C. Fever
  - D. Sydenham Chorea
4. What is likely cause of the continuous non-radiating machine-like murmur heard at the left upper sternal border in a 1 day old boy who was delivered at term via normal vaginal delivery without any complication?
  - A. Pulmonary stenosis
  - B. Atrial Septal Defect
  - C. Patent Ductus Arteriosus
  - D. Pericardial Effusion
5. Radiological sign for Transposition of Great arteries?
  - A. Figure of three
  - B. Box-shaped heart
  - C. Boot-shaped heart
  - D. Egg on string
6. A 55 year old man is brought because of sudden onset difficulty speaking for 1 hour . The patient speaks slowly in simple sentences containing only one word. He can clearly hear and understand what the physician says. What area of brain is most likely affected in this patient?
  - A. Broca's area
  - B. Wernicke's area
  - C. Paracentral lobule
  - D. Insula
7. Next Best step in the management of a pregnant lady with sudden weakness on right side of her body, inability to speak , blood pressure 150/90 mm hg, and 1/5 motor strength on right side developed over an hour back, Her NCCT is normal
  - A. Immediately start her on Dual Antiplatelet Therapy (DAT)
  - B. Thrombolysis
  - C. Perform an MRI and do a catheter guided clot extraction
  - D. Thrombectomy

8. A patient with two hours of generalized tonic-clonic seizures without regaining consciousness in between. There was frothing from mouth, up-rolling of eyeballs and urinary incontinence. Which of the following is the appropriate pharmacotherapy?
  - A. Phenobarbital
  - B. Phenytoin
  - C. Lorazepam
  - D. Valproate
  
9. Safest Anti-epileptic for Generalized tonic-clonic seizure in Pregnancy?
  - A. Lamotrigine
  - B. Carbamazepine
  - C. Topiramate
  - D. Phenytoin
  
10. Which of the following will be the least significant marker of AKI?
  - A. CA125
  - B. Urea
  - C. Creatinine
  - D. Alkaline Phosphatase
  
11. A man complains of double vision, worse when watching TV. He feels weaker towards the end of the day and his face is slightly puffy. There is ptosis of left eyelid, mouth hangs open and neck veins are distended. What is the diagnosis?
  - A. Lambertton Eaton Syndrome
  - B. Myasthenia Gravis
  - C. Duchenne's Muscular dystrophy
  - D. Multiple System Atrophy
  
12. Treatment of choice for Paracetamol overdose?
  - A. Atropine
  - B. Naloxone
  - C. N-Acetylcysteine
  - D. Phentolamine
  
13. Toxicity of which system is seen by the bites of snakes from family of Elapidae (cobras, mambas, common kraits)
  - A. Vasculotoxic
  - B. Neurotoxic
  - C. Musculotoxic
  - D. Non toxic
  
14. Which of the following condition is a contraindication for hemodialysis?
  - A. Hypertension
  - B. Refractory Hyperkalemia
  - C. Metabolic alkalosis
  - D. Coagulopathy
  
15. Most common subtype of Hodgkin's Lymphoma is
  - A. Nodular Sclerosis
  - B. Mixed cellularity
  - C. Lymphocyte predominant
  - D. Lymphocyte rich

16. Best Method for the diagnosis of Hiatus Hernia is
- Barium Meal follow through
  - Barium Meal Upper GI series
  - CT scan with oral contrast
  - Upper GI endoscopy
17. Which out of the following is Normocytic normochromic anemia?
- Iron deficiency Anemia
  - Sideroblastic anemia
  - Thiamine Deficiency
  - Anemia of chronic Disease
18. What forms the triad of Plummer-Vinson syndrome
- Esophageal Webs, Microcytic hypochromia anemia, atrophic glossitis
  - Esophageal Webs, Microcytic hypochromia anemia, koilonychia
  - Microcytic hypochromia anemia, koilonychia, atrophic glossitis
  - Koilonychia, atrophic glossitis, Esophageal Webs
19. A patient presents with frequent epigastric pain with burning sensation for the past 2 years. The pain usually occurs 2-3 hours after a meal and is relieved by taking food. He also says that he wakes up at night because of severe pain. The most probable cause for his symptom is:
- Gastric ulcer
  - Duodenal Ulcer
  - Esophagitis
  - GERD
20. Which of the Drug is not effective in H.Pylori eradication in a patient with peptic ulcer disease?
- Bismuth Subsalicylate
  - Erythromycin
  - Amoxicillin
  - Metronidazole
21. Which of the following is true about Philadelphia chromosome?
- Unbalanced translocation between short arm of chromosome 9 and 22
  - Unbalanced translocation between long arm of chromosome 9 and 22
  - balanced translocation between short arm of chromosome 9 and 22
  - balanced translocation between short arm of chromosome 9 and 22
22. Patients suffering from which type of Acute Myeloid Leukemia are more prone to develop Disseminated Intravascular coagulation?
- Monocytic
  - Myelomonocytic
  - Monoblastic
  - Acute promyelocytic
23. Isolated prolongation of prothrombin time was seen in a patient with chronic liver disease . What does this suggest?
- Factor VII deficiency
  - Factor XII deficiency
  - Factor XI deficiency
  - Factor VIII deficiency

24. Which of the following mechanisms is predominantly responsible for an increase in fasting plasma glucose level of patients with type 2 diabetes mellitus?
- A. Increased hepatic gluconeogenesis
  - B. Decreased Peripheral uptake of glucose
  - C. Decreased Glycogenesis in muscles
  - D. Decreased Hepatic glycogenesis
25. Which of the following is not a feature of diabetic ketoacidosis?
- A. Low serum sodium
  - B. High Anion gap
  - C. Serum pH <7.4
  - D. Serum Bicarbonate > 15 meq/L
26. Which of the following is specific sign for Grave's disease?
- A. Goiter
  - B. Ophthalmopathy
  - C. Thyroid bruit
  - D. Pretibial Myxedema
27. Most common symptom of thyrotoxicosis
- A. Palpitation
  - B. Fatigue and weakness
  - C. Heat intolerance
  - D. Hyperactivity and irritability
28. Which of the following arteries is most commonly involved in patients with coronary artery disease?
- A. Right Coronary artery
  - B. Left anterior descending coronary artery
  - C. Left circumflex coronary artery
  - D. Left main coronary artery
29. Which area of myocardium is most vulnerable to damage in patients with ischemic heart disease
- A. Subepicardium
  - B. Subendocardium
  - C. Pericardium
  - D. Midmyocardium
30. A 45 year old woman is diagnosed with mitral stenosis . which of the following features is least likely to be seen in this patient?
- A. Pulmonary Artery Hypertension
  - B. Tricuspid Regurgitation
  - C. Right ventricular hypertrophy
  - D. Left ventricular hypertrophy
31. A 49 year old woman was brought to the emergency with complaints of dizziness, shortness of breath and palpitations. ECG showed tachyarrhythmia with narrow QRS complex and irregular RR interval with absent p waves. What is likely diagnosis
- A. Atrial fibrillation
  - B. AV nodal re-entry tachycardia
  - C. Atrial flutter
  - D. Atrioventricular re-entry tachycardia

32. Which is the most aggressive type of lung cancer?
- A. Small cell carcinoma
  - B. Squamous cell carcinoma
  - C. Adenocarcinoma
  - D. Broncho-alveolar carcinoma
33. Which of the following antihypertensive decrease both preload and afterload?
- A. Hydralazine
  - B. Enalapril
  - C. Nitrates
  - D. Propranolol
34. A 45 year old man presented for haematemesis and hematochezia . An urgent upper GI endoscopy showed multiple esophageal varices, mild portal hypertensive gastropathy, and no gastric varices. Which of the following agents is recommended for variceal bleeding?
- A. Octreotide
  - B. TIPS
  - C. Antibiotics
  - D. Nitroglycerine
35. Which of the following drug used in heart failure is an inhibitor of I(f) current in sinoatrial node?
- A. Omapatrilat
  - B. Ivabradine
  - C. Nesiritide
  - D. Levosimendan
36. Which is the best way to diagnose patients with suspected bronchial asthma?
- A. Chest Xray
  - B. Skin test for inhaled allergens
  - C. FEV1 VALUES
  - D. Demonstration of reversible obstruction
37. The Gold's criteria for severe COPD?
- A. FEV1/FVC 0.7 and FEV1  $\geq$  30%
  - B. FEV1/FVC 0.7 and FEV1  $<$  30%
  - C. FEV1/FVC 0.7 and FEV1  $<$ 30%
  - D. FEV1/FVC 0.7 and FEV1  $\geq$  50%
38. Which of the following findings is least likely to be seen in patients with COPD?
- A. Barrel Chest
  - B. Hoover's sign
  - C. Cyanosis
  - D. Clubbing
39. Most common sustained arrhythmia in hypertrophic cardiomyopathy?
- A. Atrial Fibrillation
  - B. Atrial flutter
  - C. Multifocal Atrial tachycardia
  - D. Ventricular Tachycardia

40. Most common protein mutation seen in hypertrophic cardiomyopathy?
- A. Myosin heavy chain
  - B. Alpha-tropomyosin
  - C. Cardiac troponin C
  - D. Titin
41. Which of the following feature is not seen in patients with pneumothorax
- A. Deep sulcus sign
  - B. Mediastinal shift to ipsilateral side
  - C. Area of hypertranslucency on ipsilateral side
  - D. Collapse of ipsilateral lung
42. A 35 year old lady presents with pulmonary TB started on anti-tubercular therapy. What is the rationale for administering multi-drug therapy to her?
- A. To delay development of resistance
  - B. To reduce toxicity
  - C. To broaden antimicrobial spectrum
  - D. To prevent toxin release from organism
43. A 30 year old HIV positive man presents with fever for 3 weeks, dry cough, and significant weight loss. He complains of retrosternal chest pain that is worse on inspiration. Most likely diagnosis?
- A. Staphylococcus Pneumonia
  - B. Pneumococcal Pneumonia
  - C. Tuberculosis
  - D. Pneumocystis jirovecii pneumonia
44. Which of the following organism can cause both typical and atypical pneumonia?
- A. Legionella
  - B. Pneumococcus
  - C. Mycoplasma
  - D. Staphylococcus aureus
45. Which of the following seen in patients with brainstem injury ?
- A. Low  $P_{O_2}$  and high  $p_{CO_2}$
  - B. Normal  $p_{O_2}$  and high  $p_{CO_2}$
  - C. Low  $p_{O_2}$  and low  $p_{CO_2}$
  - D. Low  $p_{O_2}$  and normal  $p_{CO_2}$
46. Ideal Ventilator setting for patient with Acute Respiratory distress Syndrome?
- A. Low tidal volume High PEEP
  - B. High Tidal volume Low PEEP
  - C. High Tidal volume High PEEP
  - D. Low Tidal Volume Low PEEP
47. Which among the following hepatitis viruses is a DNA virus?
- A. Hepatitis A
  - B. Hepatitis B
  - C. Hepatitis C
  - D. Hepatitis D

48. Which of the following is associated with highest risk of developing fulminant hepatitis?  
A. Hepatitis A  
B. Hepatitis B  
C. Hepatitis E  
D. Hepatitis D
49. Which of the following sites is most commonly involved in Crohn's disease?  
A. Terminal ileum  
B. Rectosigmoid colon  
C. Transverse colon  
D. Proximal Duodenum
50. Earliest radiographic feature of Crohn's disease  
A. Ram's horn sign  
B. Rose-thorn appearance  
C. Aphthous ulcer  
D. String sign of Kantor
51. SIADH is:  
A. Hyperosmolar hyponatremia  
B. Hypo-osmolar hyponatremia  
C. Iso-osmolar hyponatremia  
D. Pseudohyponatremia
52. Rapid sodium correction can lead to:  
A. Somnolence  
B. Diuresis  
C. Central pontine demyelination  
D. Muscle cramps
53. ECG change that is seen in hypokalemia:  
A. ST elevation  
B. Absent P-wave  
C. QT prolongation  
D. U wave
54. A complication of thyroid surgery:  
A. Hyponatremia  
B. Hypokalemia  
C. Hypocalcemia  
D. Hypophosphatemia
55. Drug(s) to treat organophosphorus poisoning:  
A. Beta blockers  
B. Anticholinergics  
C. Pralidoxime  
D. Both B and C
56. Carbon monoxide poisoning can result in:  
A. Blackish red skin  
B. Cherry red skin  
C. Purple red skin  
D. Bluish red skin

57. Correct order for shockable rhythm in ACLS protocol:
- A. Adrenaline - DC shock - Chest compression
  - B. Chest compression - DC Shock - Adrenaline
  - C. DC Shock - Chest compression - Adrenaline
  - D. Adrenaline - Chest compression - DC Shock
58. PS (Pressure Support) in case of Non-invasive Ventilation is:
- A. CPAP + IPAP
  - B. EPAP + IPAP
  - C. IPAP - EPAP
  - D. IPAP - CPAP
59. In atrial fibrillation there is:
- A. Monomorphic p waves
  - B. Polymorphic p waves
  - C. Absent p waves
  - D. Multiple p waves
60. Interfaces for Non-invasive Positive Pressure Ventilation:
- A. Nasal mask
  - B. Facial mask
  - C. Anatomical mask
  - D. Both A and B
61. Utilized for weaning from mechanical ventilation:
- A. Spontaneous Breathing Index
  - B. Rapid Shallow Breathing Index
  - C. CROP index
  - D. Both A and C
62. ARDS is defined by:
- A. Berlin Criteria
  - B. New York Criteria
  - C. Canadian Criteria
  - D. Australian Criteria
63. Provided by mechanical ventilator:
- A. Auto-PEEP
  - B. Extrinsic PEEP
  - C. Intrinsic PEEP
  - D. Both A and C
64. Effect of hypercarbia:
- A. Pulmonary vasodilatation
  - B. Cerebral vasoconstriction
  - C. Renal vasoconstriction
  - D. Pulmonary vasoconstriction
65. A type of Ventilator Induced Lung Injury:
- A. Atelectasis
  - B. ARDS
  - C. Biotrauma
  - D. Pneumonia

66. Guide for Goal Directed Fluid Therapy:
- A. Stroke volume variance
  - B. Mean pressure variance
  - C. Central volume variance
  - D. IVC diameter variance
67. Loss 35% of total blood volume can be classified as Acute hemorrhage:
- A. Class I
  - B. Class II
  - C. Class III
  - D. Class IV
68. Anticoagulant-Preservative solution that gives 35 days shelf-life for PRBC:
- A. Citrate
  - B. Citrate-Phosphate-Dextrose-Adenine
  - C. Citrate-Phosphate-Dextrose
  - D. New Generation Additives
69. Risk of HLA alloimmunization is lowered in:
- A. Leukocyte poor RBC
  - B. Packed RBC
  - C. Washed RBC
  - D. Frozen RBC
70. Variable in Cockcroft-Gault equation:
- A. GFR
  - B. Creatinine
  - C. Blood Urea Nitrogen
  - D. Urea
71. Stage 5 Chronic Kidney Disease as per KDOQI Staging System is defined as:
- A. GFR <20 ml/min/1.73 sqm
  - B. GFR <15 ml/min/1.73 sqm
  - C. Urine output <1 ml/kg/min
  - D. Urine output <0.5 ml/kg/min
72. A technique of continuous renal replacement therapy:
- A. Hemodiafiltration
  - B. Isolated ultrafiltration
  - C. Hemofiltration
  - D. Both A and B
73. Typically increased in case of cholestatic jaundice:
- A. Total Bilirubin
  - B. SGOT
  - C. Indirect bilirubin
  - D. SGPT
74. Indication of hyperbaric oxygen therapy:
- A. Oxygen toxicity
  - B. Pneumothorax
  - C. Gas gangrene
  - D. Retrolental fibroplasia

75. Best method of confirming endotracheal intubation:
- A. Fogging inside ET tube
  - B. EtCO<sub>2</sub> monitoring
  - C. Auscultation by stethoscope
  - D. Fibre optic Bronchoscopy
76. Unpaired cartilage of larynx:
- A. Arytenoid
  - B. Corniculate
  - C. Cuneiform
  - D. Cricoid
77. Drug that is contraindicated in case of bronchial asthma:
- A. Alpha agonist
  - B. Beta agonist
  - C. Alpha antagonist
  - D. Beta antagonist
78. Infertility can be associated with:
- A. Pneumonia
  - B. Lung fibrosis
  - C. Cystic fibrosis
  - D. Asthma
79. Ischaemia of inferior wall of heart can be seen in ECG leads:
- A. I, aVL, aVF
  - B. V<sub>2</sub>-V<sub>4</sub>
  - C. II, III, aVF
  - D. V<sub>4</sub>-V<sub>6</sub>
80. Enzyme that is elevated in serum in case of NSTEMI:
- A. SGPT
  - B. CPK-B
  - C. CPK-M
  - D. Troponin-T
81. Characteristics of left ventricle in case of severe aortic stenosis:
- A. Concentric hypertrophy
  - B. Eccentric hypertrophy
  - C. Dilated cardiomyopathy
  - D. Obstructive cardiomyopathy
82. Part of chest wall overlying the heart is known as:
- A. Parietal pericardium
  - B. Mediastinum
  - C. Precordium
  - D. Visceral pericardium
83. Hypochloremia can be associated with:
- A. Metabolic Acidosis
  - B. Respiratory Acidosis
  - C. Metabolic Alkalosis
  - D. Respiratory Alkalosis

84. Purpose of maintaining certain water level in intercostal chest drain is:
- A. Collecting blood
  - B. Collecting pus
  - C. Preventing air entry
  - D. Preventing water entry
85. Component of chest physiotherapy:
- A. Percussion
  - B. Auscultation
  - C. Vibration
  - D. Both A and C
86. Pulse pressure is equal to:
- A.  $(SBP + DBP) / 2$
  - B.  $DBP + (1/3rd \text{ MAP})$
  - C.  $MAP - SBP$
  - D.  $SBP - DBP$
87. Deep vein thrombosis can be prevented by:
- A. Early enteral nutrition
  - B. Maintaining Blood pressure
  - C. Early ambulation
  - D. Parenteral nutrition
88. Nasogastric tube for adults have markings at:
- A. 30 cm, 40cm, 50 cm
  - B. 40 cm, 50 cm, 60 cm
  - C. 20 cm, 40 cm, 60 cm
  - D. 30 cm, 50 cm, 70 cm
89. Maximum flow rate is possible through peripheral venous cannula of:
- A. White colour
  - B. Green colour
  - C. Orange colour
  - D. Grey colour
90. Surgical airway access is:
- A. Thyroidectomy
  - B. Cricoidectomy
  - C. Cricothyroidotomy
  - D. Laryngectomy
91. Parkland formula is used for:
- A. Perioperative fluid therapy
  - B. Fluid therapy in paediatric patients
  - C. Fluid therapy in burnt patients
  - D. Fluid therapy in drowning patients
92. Most acidic pH is in which of the following:
- A. Normal Saline
  - B. Balanced Salt Solution
  - C. Ringer's Lactate solution
  - D. 5% Dextrose solution

93. Maximum FiO<sub>2</sub> achievable by which of the following:
- A. Nasal cannula
  - B. Venturi face mask
  - C. Simple face mask
  - D. Nebulization mask
94. ICU psychosis can be prevented by:
- A. Exposure to daylight
  - B. Physical restraint
  - C. Intravenous sedation
  - D. Parenteral nutrition
95. Severe hypothermia is body temperature:
- A. <30 degree celcius
  - B. <28 degree celcius
  - C. <18 degree celcius
  - D. <32 degree celcius
96. Spontaneous bacterial peritonitis can be prevented by:
- A. Parenteral nutrition
  - B. Antibiotic therapy
  - C. Early enteral feeding
  - D. Early mobilization
97. A feature of isolated left ventricular failure:
- A. Raised JVP
  - B. Pulmonary oedema
  - C. Pedal oedema
  - D. Hepatomegaly
98. Feature of pneumothorax:
- A. Flattened diaphragm in Chest X-ray
  - B. Fluid level in Chest X-ray
  - C. Increased bronchovascular markings in chest x-ray
  - D. Shifting dullness
99. One of the ketone bodies of body:
- A. Acetate
  - B. Acetoacetate
  - C. Glutamate
  - D. Butyrate
100. Shock with peripheral vasodilatation:
- A. Cardiogenic
  - B. Hypovolemic
  - C. Septic
  - D. Neurogenic