

JEMAS(PG)-2024 **QB No: 4101800001**
Subject: M.Sc in Operation Theatre Science(M.Sc OTS)

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. OTS

1. The bifurcation of trachea is at which level:
(A) Lower border of T4
(B) Upper border of T4
(C) 27.5 cm from the incisors.
(D) Lower border of T5.
2. Which muscle is responsible for the vocal cord's abduction?
(A) Lateral cricoarytenoid.
(B) Vocalis muscle.
(C) Posterior cricoarytenoid.
(D) Cricothyroid muscle.
3. The Arachnoid villi responsible for cerebrospinal fluid absorption protrude mainly in the:
(A) Superior sagittal sinus.
(B) Inferior sagittal sinus.
(C) Straight sinus.
(D) Transverse sinus.
4. Area of Mitral orifice in adult is:
(A) 6 - 8 cm².
(B) 0.5 - 2 cm².
(C) 4 - 6 cm².
(D) 1 - 4 cm².
5. While doing thoracentesis, it is advisable to introduce the needle along the:
(A) Upper border of the rib.
(B) lower border of the rib.
(C) In the centre of the intercostal space.
(D) In Anterior part border of the rib.
6. CSF pressure (lumbar):
(A) 70-180 mm CSF.
(B) 50-100 mm CSF.
(C) >200 mm CSF.
(D) 150-200 mm CSF.
7. Excitable tissue at rest is least permeable to:
(A) Na⁺
(B) K⁺
(C) Ca⁺⁺
(D) Cl⁻
8. Oxygen delivery to tissues depends on all except :
(A) Cardiac output.
(B) Type of fluid administered.
(C) Hemoglobin concentration.
(D) Affinity of hemoglobin for oxygen.

9. Surfactant is produced by:
(A) Type II Pneumocytes.
(B) Type I Pneumocytes.
(C) Macrophages.
(D) Endothelial cells
10. The cardiac output can be determined by all except:
(A) Fick's principle.
(B) V/Q ratio.
(C) Echocardiography.
(D) Thermodilution.
11. Spuriously high BP is seen in all except:
(A) Auscultatory gap.
(B) Small cuff.
(C) Thick calcified vessels.
(D) Obesity.
12. Shape of the arterial pulse is influenced by:
(A) Viscosity of blood.
(B) Velocity of blood.
(C) Arterial wall expansion.
(D) Cross sectional area of artery.
13. Which of the following is not involved in intrinsic pathway:
(A) Factor XIII.
(B) Factor XI.
(C) Factor IX.
(D) Factor VII.
14. Not done by insulin:
(A) Glycogen synthesis.
(B) Glycolysis.
(C) Lipogenesis.
(D) Ketogenesis.
15. In haemoglobin iron is bound to :
(A) Histidine.
(B) Leucine.
(C) Isoleucine.
(D) Valine.
16. Which one among the following is not an anti oxidant?
(A) Zinc.
(B) Selenium.
(C) Copper.
(D) Iron.
17. Principal cell in granuloma is
(A) Lymphocyte.
(B) Histiocyte.
(C) Langerhans cell.
(D) Giant cell.

18. Edema is caused by:
- (A) Increased hydrostatic pressure.
 - (B) Increased plasma protein.
 - (C) Decreased venous pressure.
 - (D) Decreased capillary pressure.
19. Which is a form of cold sterilisation?
- (A) Gamma rays.
 - (B) Infra red rays.
 - (C) Beta rays.
 - (D) Autoclave.
20. Temperature required for autoclaving is:
- (A) 1000c for 90 min.
 - (B) 1000c for 60 min.
 - (C) 1210c for 20 min.
 - (D) 1210c for 15 min.
21. Simplest and most effective method to prevent nosocomial infection:
- (A) Use of laminar air flow.
 - (B) Hand washing.
 - (C) Use of filters.
 - (D) Use of antibiotics.
22. True about universal precautions are all except:
- (A) To prevent transmission of blood bond pathogens.
 - (B) Use of hand washing.
 - (C) Use of gloves and mask.
 - (D) Consider that all body fluids are contaminated with blood.
23. 11 year old child presented with sore throat since 3 days, which medium is used to culture the throat swab -
- (A) Blood agar.
 - (B) Stewart medium.
 - (C) Chocolate agar.
 - (D) L.J. medium.
24. Most sensitive diagnostic test for dengue is:
- (A) IgM ELISA.
 - (B) CFT.
 - (C) Tissue culture.
 - (D) PCR.
25. Fulminant hepatitis E is seen in:
- (A) Malnourished males.
 - (B) Infants.
 - (C) Pregnant women.
 - (D) Adolescents.
26. HIV post exposure prophylaxis should be started in :
- (A) 6 hours.
 - (B) 24 hours.
 - (C) 48 hours.
 - (D) 72 hours.

27. Maximum first pass metabolism is seen by which route:
- (A) Intravenous.
 - (B) Intraarterial
 - (C) Rectal
 - (D) Oral.
28. Beta -2 agonist cause all except:
- (A) Hyperkalemia.
 - (B) Hyperglycemia.
 - (C) Tremor.
 - (D) Palpitation.
29. Atropine causes all of the following except:
- (A) Bradycardia, hypothermia.
 - (B) Decreased salivary secretion
 - (C) Fever/rise of body temperature.
 - (D) Increased A-V conduction.
30. Which is not used in status epilepticus?
- (A) Lorazepam
 - (B) Phenytoin
 - (C) Phenobarbitone
 - (D) Valproate
31. Drug used to close PDA:
- (A) Prostaglandin E2.
 - (B) Prostacyclin.
 - (C) Indomethacin.
 - (D) Steroids.
32. Digitalis is given in:
- (A) Hypertension.
 - (B) Heart failure.
 - (C) Angina pectoris.
 - (D) Kidney failure.
33. Mechanism of action of tranexamic acid is:
- (A) Decrease vascular permeability.
 - (B) Smooth muscle contraction
 - (C) Activates plasmin formation
 - (D) Prevents fibrinolysis.
34. Discarded cytotoxic medicines should be disposed in:
- (A) Blue bag.
 - (B) Black bag.
 - (C) Red bag.
 - (D) Yellow bag.
35. Which of the following muscle relaxant causing maximum pain on injection:
- (A) Succinyl choline.
 - (B) Vecuronium.
 - (C) Rocuronium.
 - (D) Cis atracurium.

36. Spinal anaesthesia is given at which of the following level:
- (A) L1 - L2.
 - (B) L2- L4.
 - (C) Mid line of thorax.
 - (D) Below L5.
37. All of the followings are examples of definite airways except:
- (A) Nasotracheal tube.
 - (B) Orotracheal tube.
 - (C) Laryngeal mask airway.
 - (D) Cricothyroidotomy.
38. Individual intra operative awareness is evaluated by:
- (A) Pulse oximetry
 - (B) Colour doppler
 - (C) Bispectral imaging.
 - (D) End tidal CO²
39. Secondary haemorrhage after tonsillectomy usually present at:
- (A) 12 hours.
 - (B) 24 hours.
 - (C) 6 days.
 - (D) 12 days.
40. Most common nerve involve in supra condylar fracture of humerus:
- (A) Radial nerve.
 - (B) Ulnar nerve.
 - (C) Median nerve.
 - (D) Anterior interosius nerve.
41. Active management of third stage of labour includes all of the following except:
- (A) Oxitocin injection.
 - (B) Ergometrin injection.
 - (C) Controlled cord traction.
 - (D) Early cord clamping and cutting.
42. All of the following are associated with polycystic ovarian syndrome:
- (A) Ovarian carcinoma.
 - (B) Endometrial carcinoma.
 - (C) Insulin resistance.
 - (D) Osteoporosis.
43. Most effective contraceptive method recommended in lactating mother is:
- (A) Barrier method.
 - (B) Progesterone only pill.
 - (C) Contraceptive pill.
 - (D) Lactation amenorrhoea.
44. The most common fetal response to acute hypoxia is:
- (A) Tachycardia.
 - (B) Tachypnoea.
 - (C) Bradycardia.
 - (D) Ventricular arrhythmia.

45. Which of the following is the most complication of total parenteral nutrition?
(A) Catheter related complication.
(B) Acidosis.
(C) Acalculus cholecystitis.
(D) Hypokalaemia.
46. A person with inappropriate speech evaluated by the Glassgow coma scale will have a verbal score of:
(A) 4.
(B) 3.
(C) 2.
(D) 1.
47. Best material for below inguinal arterial graft is:
(A) Saphenous vein graft (upside - down).
(B) PTFE graft.
(C) Dacron.
(D) Teflon.
48. Anti Rabies vaccine is prepared by:
(A) Street virus.
(B) Fixed virus.
(C) Wild virus.
(D) Live virus.
49. Most common presentation of extra pulmonary tuberculosis is:
(A) Lungs involvement.
(B) Arthritis.
(C) Cervical lymphadenitis.
(D) Cold abscess.
50. Most important feature to diagnose of severe pneumonia
(A) Fast breathing.
(B) Cyanosis.
(C) Nasal flaring.
(D) Chest indrawing.
51. Intrapulmonary bronchus is lined by:
(A) Stratified Squamous cell tissue.
(B) Simple columnar epithelial layer.
(C) Pseudostratified ciliated columnar epithelium.
(D) Simple squamous epithelium.
52. Which one of the following is a content of superior mediastinum?
(A) Bifurcation of Trachea.
(B) Pulmonary Trunk.
(C) Azygous Vein.
(D) Arch of Aorta.

53. The anterior rough part of right atrium has one of the following:
- (A) Trabeculae carneae.
 - (B) Musculi pectinati.
 - (C) Papillary Muscle.
 - (D) Moderator Band.
54. If cranial nerves III, IV, VI and ophthalmic nerves are paralysed, the infection is most likely localized in which of the following?
- (A) Apex of Orbit.
 - (B) Base of skull.
 - (C) Cavernous Sinus.
 - (D) Brain stem.
55. Which of the following drugs are associated with coronary steal phenomenon?
- (A) Diltiazem.
 - (B) Dipyridamole.
 - (C) Disopyramide.
 - (D) Propranolol.
56. Which of the following is a non absorbable suture material?
- (A) Chromic Catgut.
 - (B) Polyglactin.
 - (C) Polypropylene.
 - (D) Polyglycolic acid.
57. Which of the following organism is gram positive microorganism?
- (A) Klebsiella spp.
 - (B) Clostridium difficile.
 - (C) Pseudomonas spp.
 - (D) Proteus.
58. The greatest total cross sectional area in the circulatory system is of _____.
- (A) Aorta.
 - (B) Capillaries.
 - (C) Venules.
 - (D) Vena Cavae.
59. The septal perforators are branches of which coronary artery?
- (A) Left Anterior Descending Artery.
 - (B) Left Circumflex Artery.
 - (C) Right acute marginal artery.
 - (D) Posterior Descending Artery.
60. Tennis Elbow is _____ :
- (A) Inflammation of olecranon bursa.
 - (B) Tendinosis of common Flexor origin(medial epicondylitis).
 - (C) Subdeltoid subacromial bursitis.
 - (D) Tendinosis of common extensor origin(lateral epicondylitis).
61. Which airway was designed for aiding fiberoptic intubation?
- (A) Berman airway.
 - (B) Patil Syracuse Endoscopic Airway.
 - (C) William's airway.
 - (D) Guedel's Airway.

62. Ethylene Oxide:
- (A) Is inflammable in the concentration exceeding 2%.
 - (B) Is odorless and non poisonous.
 - (C) Kills bacteria, spores, fungi and viruses.
 - (D) Should be used on items that are wet.
63. Glutaraldehyde has which of the following property?
- (A) Coagulates with proteinaceous material.
 - (B) Has long shelf life.
 - (C) Highly corrosive to most of the equipments.
 - (D) Non effective against fungi.
64. The Diameter Index Safety System (DISS):
- (A) Was developed to provide interchangeable connections for medical gas lines.
 - (B) DISS connector has a body, nipple and nut combinations.
 - (C) Is used for gas lines with pressures more than 200 psi.
 - (D) It has only one shoulder around the nipple.
65. The Pin Index for Cyclopropane is:
- (A) 1,4
 - (B) 3,5
 - (C) 2,5
 - (D) 3,6
66. The high pressure system of anaesthesia machine includes which of the following?
- (A) Hanger Yolk.
 - (B) Pipeline inlet connections.
 - (C) Flowmeters.
 - (D) Oxygen flush.
67. If the flowmeter tube is broken:
- (A) Only the tube needs to be repaired.
 - (B) The indicator can be used in the new tube if it is a ball.
 - (C) The scale must be replaced if it is integral to the tube.
 - (D) The tube, indicator and scale must be replaced as a unit.
68. Which of the following is not a characteristic of Mapleson circuits?
- (A) Carbon washout circuits.
 - (B) Presence of unidirectional valve to direct gas flow to and from patient.
 - (C) If inspiratory flow exceeds fresh gas flow, rebreathing can occur.
 - (D) No device for absorbing CO².
69. Which of the following is true for carbon dioxide absorbents in closed breathing system?
- (A) The end products of the reaction are water and carbonate only, no heat is liberated.
 - (B) The higher the mesh number, smaller the granule size and more the surface area of absorbent granules.
 - (C) No indicators are used to signify absorbent has exhausted.
 - (D) More the fresh gas flow, more the production of compound A formation.

70. Which of the following is not an effect of inhaling dry gases?
- (A)Drying of the mucosa.
 - (B)Decreasedlung compliance.
 - (C)Development of loci for infection.
 - (D)Decreased alveolar arterial oxygen difference.
71. Where should a heated humidifier be located in the circle system?
- (A)Between the Y piece and tracheal tube.
 - (B)Between inspiratory tubing and Y piece.
 - (C)Between the absorber and inspiratory tubing.
 - (D)Between the Y piece and the mask.
72. Cardiopulmonary Bypass was first used successfully by whom?
- (A)Sir Henry Souttar in 1925.
 - (B)John Gibbon in 1953.
 - (C)Alfred Blalock.
 - (D)Dr N. Gopinath.
73. Which of the following statement is not true for varicose veins?
- (A)Patients describe aching,heaviness,throbbing ,burning or bursting pain over affected areas or whole limb.
 - (B)Symptoms can be severe enough to interfere with daily activities.
 - (C)Symptoms are aggravated by elevation of limb or compression hosiery.
 - (D)Itching can occur when complications set in like swelling of ankle.
74. Which of the following structures are present in PortaHepatis of the liver?
- (A)Hepatic artery, portal vein , bile duct,nerves and lymphatics.
 - (B)Left and Right triangular ligaments.
 - (C)Splenic vein and mesenteric vein.
 - (D)Gall bladder and cystic duct.
75. Which of the following statement is true for oesophagus?
- (A)Oesophagus extends from upper esophageal sphincter in the neck to junction of cardia of the stomach.
 - (B)The upper sphincter consists of non striated muscle.
 - (C)Oesophagus is a muscular tube approximately 25 cm long occupying anterior mediastinum.
 - (D)In the lower half of esophagus striated muscles are present.
76. How is the depth of insertion for blind insertion of a left sided double lumen tube determined?
- (A)Patient sex.
 - (B)Patient weight.
 - (C)Patient height.
 - (D)Patient Age.
77. The mean airway pressure during positive pressure ventilation is not influenced by:
- (A)PEEP.
 - (B)Peak airway pressure.
 - (C)Inflation time relative to total time in ventilator cycle.
 - (D)Cardiac function.

78. Which of the following statements are true for Airway Pressure Release Ventilation?
- (A) It employs short periods of spontaneous breathing.
 - (B) There are intermittent prolonged periods of pressure release to atmospheric pressures.
 - (C) It is a variant of Continuous Positive Airway Pressure (CPAP) which is spontaneous breathing at a positive end expiratory pressure.
 - (D) It does not promote alveolar recruitment.
79. Which of the following statements are true for defibrillation?
- (A) Pulseless electrical activity is a shockable rhythm.
 - (B) The recommended impulse strength is 120-200 J for biphasic waveforms in pulseless VT or VF.
 - (C) Defibrillation requires synchronous shocks (timed to QRS complex).
 - (D) Defibrillation is most effective for Asystole.
80. Epinephrine:
- (A) Acts predominantly on alpha 2 receptors.
 - (B) Its use is associated with increased rate of return to spontaneous circulation.
 - (C) Does not increase coronary perfusion.
 - (D) Does not cause cardiac stimulation.
81. Chemical composition of propofol is:
- (A) 3, 6 di-isopropylphenol.
 - (B) 2, 6 di-isopropylphenol.
 - (C) 2 isopropylphenol.
 - (D) 4, 6 di-isopropylphenol.
82. Which of the following is true for Ketamine?
- (A) Onset of anaesthesia is slow but recovery after bolus dose is faster than propofol.
 - (B) It causes severe respiratory depression even at low doses.
 - (C) It acts as a competitive inhibitor at NMDA receptor.
 - (D) It is a phenylcyclidine derivative.
83. Which of the following is the neuromuscular blocking agent with fastest onset of action?
- (A) Vecuronium.
 - (B) Rapacuronium.
 - (C) Succinylcholine.
 - (D) Pancuronium.
84. If a patient has severe systemic disease with limited lifestyle eg. Poorly controlled hypertension or diabetes mellitus, he/she belongs to which class of American Society of Anaesthesiologists (ASA) Classification?
- (A) ASA III.
 - (B) ASA IV.
 - (C) ASA II.
 - (D) ASA V.
85. Which of the following inhaled anaesthetic gas causes 'coronary steal' phenomenon?
- (A) Sevoflurane.
 - (B) Nitrous Oxide.
 - (C) Isoflurane.
 - (D) Entonox.

86. Which of the following statement about the process of wound healing is true?
- (A) The inflammatory phase begins 2–3 days after the injury.
 - (B) The proliferative phase lasts from 3 days to 3 weeks following the injury.
 - (C) The remodelling phase involves fibroblast activity and production of collagen and ground substance.
 - (D) The white cells stick to the damaged endothelium and release adenosine diphosphate (ADP) and cytokines.
87. What is the most significant disadvantage of the laryngeal mask airway (LMA) over an endotracheal tube?
- (A) Failure to allow tracheal suction.
 - (B) Risk of pulmonary aspiration.
 - (C) Unreliable placement.
 - (D) Enhanced risk of tube obstruction.
88. Which of the following statements are false?
- (A) Polymeric synthetic suture materials cause minimal inflammatory reaction.
 - (B) Monofilament non-absorbable sutures are easy to use in tying secure knots.
 - (C) The integrity of polypropylene sutures in holding tissues together can last indefinitely.
 - (D) Braided suture material can be a nidus for infection.
89. Which of the following statement is true?
- (A) The simplest and most commonly used crystalloid is Ringer's lactate.
 - (B) Hypertonic saline produces an excess of intracellular water shifting to the extracellular space.
 - (C) Human albumin solution is a colloid which increases protein leak out of cells, thereby increasing oedema.
 - (D) Using the Parkland formula, the fluid requirement in the first 24 h for a man of 70 kg with a burn involving both upper limbs, including the hands, is 4800 mL.
90. Which of these is not a risk factor for ischaemic heart disease?
- (A) Smoking.
 - (B) Obesity.
 - (C) Advancing age.
 - (D) Increased physical activity.
91. Which of the following is not a sign of acute appendicitis?
- (A) Rovsing's sign.
 - (B) Pointing sign.
 - (C) Psoas sign.
 - (D) Murphy's sign.
92. The uterine arteries arise from?
- (A) Abdominal aorta.
 - (B) Superior mesenteric artery.
 - (C) The anterior branch of the internal iliac arteries.
 - (D) Celiac artery.

93. Which of the following statements are true for the lungs?
- (A) Left Lung has 3 lobes: upper, middle and lower lobes.
 - (B) Right lung has only 2 lobes, upper and lower lobe, separated by oblique fissure.
 - (C) The left lung is divided into an upper lobe and a lower lobe by the oblique fissure.
 - (D) The right bronchus is longer and narrower than left bronchus.
94. Which of the following is a problem specifically associated with surgery in a jaundiced patient?
- (A) Aspiration.
 - (B) Myocardial Infarction.
 - (C) Pressure sore.
 - (D) Clotting disorders.
95. The 'y' descent in a Central Venous Pressure (CVP) waveform signifies which of the following?
- (A) Right Atrial relaxation.
 - (B) Early Right Ventricle filling.
 - (C) Right Atrial contraction.
 - (D) Isovolumetric contraction.
96. Which of the following statement about heparin is false?
- (A) It is a glycosaminoglycan.
 - (B) It binds with antithrombin and potentiates its action.
 - (C) It does not cause thrombocytopenia.
 - (D) It is mainly distributed in intravascular space and endothelial cells.
97. Accuracy of automatic non invasive blood monitoring may be affected by?
- (A) Electrosurgical interference.
 - (B) Venous engorgement.
 - (C) Peripheral vasoconstriction.
 - (D) Cuff size.
98. Oxyhemoglobin absorbs more light in:
- (A) Red band.
 - (B) Infrared band.
 - (C) Blue band.
 - (D) Purple band.
99. A typical gas cylinder label does not include
- (A) Diamond shaped figure showing inflammable/noninflammable.
 - (B) Name of the gas.
 - (C) Colour code of the gas.
 - (D) Signal word.
100. Which of the following statement is true about volume controlled ventilation?
- (A) It is flow cycled.
 - (B) It is volume/time cycled.
 - (C) Variable tidal volume delivered.
 - (D) It is pressure initiated.