

Sikkim Public Service Commission

Written Examination for the post of Specialist (Senior Grade) - Anaesthesia

Time Allowed: 3 hours & 30 minutes

PAPER - II

Maximum Marks: 300

INSTRUCTIONS TO CANDIDATES

Read the instructions carefully before answering the questions: -

1. This Test Booklet consists of 12 (twelve) pages and has 100 (hundred) printed questions.
2. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET DOES NOT HAVE ANY UNPRINTED, TORN OR MISSING PAGES OR ITEMS. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
3. Use only Black Ball Point Pen to fill the OMR Sheet.
4. Please note that it is the candidate's responsibility to fill in the Roll Number carefully without any omission or discrepancy at the appropriate places in the OMR ANSWER SHEET as well as on SEPARATE ANSWER BOOKLET for Conventional Type Questions. Any omission/discrepancy will render the Answer Sheet liable for rejection.
5. Do not write anything else on the OMR Answer Sheet except the required information. Before you proceed to mark in the OMR Answer Sheet, please ensure that you have filled in the required particulars as per given instructions.
6. This Test Booklet is divided into 4 (four) parts - Part-I, Part-II, Part-III and Part-IV.
7. All four parts are Compulsory.
8. Part-I consists of Multiple-Choice Questions. The answers for these questions have to be marked in the OMR Answer Sheet provided to you.
9. Parts II, III and IV consists of Conventional Type Questions. The answers for these questions have to be written in the Separate Answer Booklet provided to you.
10. After you have completed filling in all your responses on the OMR Answer Sheet and the Answer Booklet(s) and the examination has concluded, you should hand over the OMR Answer Sheet and the Answer Booklet(s) to the Invigilator only. You are permitted to take the Test Booklet with you.
11. **Marking Scheme**

THERE WILL BE **NEGATIVE MARKING** FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTIONS

- (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one-third of the marks assigned to the question will be deducted as penalty.
- (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to the question.
- (iii) If a question is left blank. i.e., no answer is given by the candidate, there will be no penalty for that question.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

PART - I
(Multiple Choice Questions)

Choose the correct answer for Questions 1 to 75 from the given options. Each question carries 2 marks.
[75 x 2 = 150]

1. Laryngospasm is caused by stimulation of:
 - (a) Superior Laryngeal Nerve
 - (b) Inferior Laryngeal Nerve
 - (c) Recurrent Laryngeal Nerve
 - (d) All of the above
2. Drugs **not known to trigger** malignant hyperthermia is:
 - (a) Succinylcholine
 - (b) Ether
 - (c) Halothane
 - (d) Dexmedetomidine
3. Treatment of anaphylaxis **does not include**:
 - (a) Steroids
 - (b) Diphenhydramine
 - (c) Ranitidine
 - (d) Proton pump inhibitors
4. All of the following are actions of Parathyroid hormone **except** -
 - (a) Increase resorption of calcium & phosphate from bones
 - (b) Decrease resorption of calcium & phosphate from bones
 - (c) Increase resorption of calcium in kidney
 - (d) Decrease resorption of bicarbonates in kidney
5. BMI is defined as -
 - (a) weight (kg)/height (cm²)
 - (b) weight (kg)/height (m²)
 - (c) weight (kg)/height (m²) x 100
 - (d) None of the above
6. Management of oculocardiac reflex **does not include** -
 - (a) Cessation of surgical stimulation
 - (b) Administration of Atropine
 - (c) Infiltration of local anaesthetic in rectus muscle
 - (d) Administration of Beta blockers
7. In fat embolism syndrome fat globules may be found in all **except** -
 - (a) Sputum
 - (b) Urine
 - (c) Retina
 - (d) Stool
8. According to rule of 9 burn of entire head and neck will cover ____% of body surface.
 - (a) 9%
 - (b) 18%
 - (c) 11%
 - (d) 1%
9. Which one of the following is **not** a physiological change associated with pregnancy?
 - (a) Capillary engorgement of respiratory muscle
 - (b) Decrease of FRC
 - (c) Decrease of cardiac output
 - (d) Hypercoagulable state
10. APGAR score includes all **except** -
 - (a) Heart rate
 - (b) Respiratory rate
 - (c) Respiratory efforts
 - (d) Reflex irritability
11. VATER syndrome in pediatric population have -
 - (a) Vocal cord palsy
 - (b) Vertebral defects
 - (c) Vecuronium sensitivity
 - (d) Vasa recta
12. ECG changes of Hyperkalemia are all **except** -
 - (a) Peaking of T wave
 - (b) Shortening of P-R interval

- (c) Widening of QRS complex
(d) Prolongation of P-R interval
13. Total volume of CSF in adult is -
(a) 500 ml
(b) 50 ml
(c) 150 ml
(d) 250 ml
14. Which of the following is the only left sided Double lumen tube?
(a) Carlens tube
(b) Whites tube
(c) Red rubber tube
(d) Robert shaws tube
15. FRC can be defined as -
(a) TV + ERV
(b) RV + ERV
(c) RV + ERV + IRV
(d) ERV + IRV
16. Innervation to diaphragm is -
(a) C1-C5
(b) C2-C5
(c) C3-C5
(d) C1-C7
17. Higher risk of PDPH is associated with all of the following **except** -
(a) larger size needle
(b) female sex
(c) type of needle
(d) male sex
18. Tuffier's line lies at level of -
(a) T12
(b) T8
(c) L4
(d) L5
19. _____ is a Benzodiazepine antagonist.
(a) flunarazine
(b) flumazenil
(c) fluorocarbon
(d) none of the above
20. Dexmedetomidine is a -
(a) selective alpha -1 agonist
(b) selective alpha -2 agonist
(c) selective alpha -1 antagonist
(d) selective alpha -2 antagonist
21. All are true about Glycopyrrolate **except** -
(a) synthetic compound
(b) quaternary structure
(c) can cross blood brain barrier
(d) has larger duration of action than atropine
22. Laudanosine is a breakdown product of -
(a) rocuronium
(b) vecuronium
(c) atracurium
(d) cis atracurium
23. Which of the following is not an opioid?
(a) fentanyl
(b) meperidine
(c) mephentermine
(d) morphine
24. Compound A, a nephrotoxic end product is formed with -
(a) halothane
(b) isoflurane
(c) desflurane
(d) sevoflurane
25. MAC awake is equal to -
(a) 0.3 MAC
(b) 0.8 MAC
(c) 1 MAC
(d) 2 MAC
26. BIS values recommended for sedation are -
(a) 40-65
(b) 65-85
(c) 85-100
(d) 0-40
27. Mean artery pressure (MAP) is given by -
(a) $MAP = SBP + DBP/2$
(b) $MAP = 2(SBP) + DBP/3$

- (c) $MAP = SBP + 2(DBP)/3$
 (d) $MAP = SBP + DBP/3$
28. _____ is not included in the algorithm of brady-arrhythmia according to AHA.
 (a) atropine
 (b) adrenaline
 (c) isoprenaline
 (d) dopamine
29. Which haemoglobin does not affect the pulse oximeter?
 (a) Haemoglobin H
 (b) Haemoglobin S
 (c) Sulph-haemoglobin
 (d) Fetal-haemoglobin
30. The stimulus waveform in neuromuscular monitoring should be -
 (a) Biphasic
 (b) Monophasic
 (c) Notched
 (d) Sloping
31. Which of the following are considered safe in MRI suite?
 (a) Aluminium
 (b) Plastic
 (c) Brass
 (d) All of the above
32. Which of the following type of endotracheal tube will cause most severe injuries to tracheobronchial tree if it catches fire?
 (a) PVC
 (b) Red rubber
 (c) Silicon
 (d) Laser resistant
33. The airway used to aid in fiber-optic intubation is -
 (a) Ovassapian
 (b) Patil-Syracuse
 (c) Williams
 (d) All of the above
34. Which anaesthetic agent is associated with highest level of carbon monoxide formation?
 (a) Desflurane
 (b) Sevoflurane
 (c) Isoflurane
 (d) Enflurane
35. Which anaesthetic agent is associated with formation of compound A during low flow anaesthesia?
 (a) Desflurane
 (b) Sevoflurane
 (c) Isoflurane
 (d) Enflurane
36. Which of the following gas passes through sieve bed of oxygen concentrator along with oxygen?
 (a) Argon
 (b) Water vapor
 (c) Hydrocarbons
 (d) None of the above
37. Pin index of oxygen is -
 (a) 1, 5
 (b) 2, 5
 (c) 3, 5
 (d) 4, 5
38. What is the approximate Oxygen content (in litres) in an E-type cylinder?
 (a) 500
 (b) 750
 (c) 650
 (d) 900
39. The study describing how the body affects a drug is called -
 (a) Pharmacodynamics
 (b) Pharmacokinetics
 (c) Pharmacopoeia
 (d) None of the above
40. Ejection fraction of the heart is calculated as -
 (a) EDV/SV
 (b) SV/EDV

- (c) $SV \times EDV$
(d) $EDV - SV$
41. Increase in peak pressure but unchanged plateau pressure means -
(a) Decrease in airway resistance
(b) Increase in airway resistance
(c) Increase in distensibility of lung
(d) All of the above
42. All of the following are true about Sequential Organ Failure Assessment (SOFA) Score **except**:
(a) Evaluates the function of 6 major organ systems.
(b) Performed at the time of admission and then daily.
(c) Most abnormal value in 24 hours is used.
(d) All of the above.
43. Which of the following oral hypoglycemic drugs is stopped 1-2 days before surgery?
(a) Sulphonyl urea
(b) Metformin
(c) Both of the above
(d) None of the above
44. Myasthenia gravis class I includes weakness of:
(a) upper limb muscles
(b) diaphragm
(c) ocular
(d) non-ocular
45. Which of the following is **false** in respect of Succinylcholine?
(a) Increases the ICP
(b) Raises serum potassium by 2 per Eq/L
(c) Is short acting
(d) None of the above
46. Which of the following is correct about hemophilia?
(a) PT increases
(b) PTT increases
(c) TT increases
(d) Fibrinogen increases
47. Treatment of cyanide toxicity includes -
(a) Sodium thiosulfate
(b) Sodium nitrate
(c) Both of the above
(d) None of the above
48. Celiac plexus block is used for analgesia in pain due to-
(a) Pleuritis
(b) Lower limb
(c) Abdominal viscera
(d) All of the above
49. Which of the following is seen during acidosis?
(a) Increase in extracellular and plasma K^+
(b) Decrease in extracellular and plasma K^+
(c) Increase in intracellular K^+
(d) None of the above
50. Which of the following regarding average blood volume is **false**?
(a) Adult man has 75 ml/kg
(b) Infant has 80 ml/kg
(c) Premature baby has 95ml/kg
(d) None of the above
51. $PaCO_2$ which represents the balance between CO_2 production and elimination is calculated as -
(a) $\frac{\text{Alveolar ventilation}}{CO_2 \text{ production}}$
(b) $\frac{CO_2 \text{ production}}{\text{Alveolar ventilation}}$
(c) $CO_2 \text{ production} - \text{Alveolar ventilation}$
(d) $CO_2 \text{ production} \times \text{Alveolar ventilation}$

52. Liver produces all the following coagulation factors **except** -
(a) Factor VII
(b) Factor VIII
(c) Factor IX
(d) Factor X
53. All of the following are signs of malignant hyperthermia **except** -
(a) Hyper metabolism
(b) Increased sympathetic activity
(c) Generalised muscle flaccidity
(d) hyperthermia
54. Perception of an ordinarily non noxious stimulus as pain is called -
(a) Analgesia
(b) Hyperalgesia
(c) Allodynia
(d) Anesthesia
55. Safety features of an anesthesia work station includes all of the following **except** -
(a) oxygen flush mechanism passes through vaporisers.
(b) oxygen flush mechanism doesn't pass through vaporisers.
(c) oxygen must be downstream to other gases.
(d) low oxygen pressure alarm.
56. Child-Pugh scoring system to assess severity of liver disease uses all of the following parameters **except** -
(a) Ascites
(b) Albumin
(c) Bilirubin
(d) Achalasia
57. Total body water comprises approximately ____% of body weight in a non-obese adult.
(a) 50%
(b) 60%
(c) 70%
(d) 80%
58. All of the following drugs inhibit platelet function **except** -
(a) clopidogrel
(b) abciximab
(c) piroxicam
(d) azithromycin
59. According to the ASA, a declared brain-dead patient whose organs are being removed for donor purposes is classified under which category?
(a) PS 4
(b) PS 5
(c) PS 6
(d) PS 7
60. Soda lime contains all of the following **except** -
(a) calcium hydroxide
(b) sodium hydroxide
(c) potassium hydroxide
(d) barium hydroxide
61. The best circuit for spontaneous respiration is -
(a) Mapleson d
(b) Mapleson A
(c) Mapleson C
(d) Mapleson B
62. The structures visible in Mallampati grade IV are -
(a) hard palate and soft palate.
(b) hard palate, soft palate and uvula.
(c) hard palate.
(d) hard palate and uvula.
63. Air embolism might be a complication with all of the following positions except in -
(a) Trendelenburg
(b) Reverse Trendelenburg
(c) Sitting
(d) Prone
64. The guideline suggesting the need for mechanical ventilation is -
(a) RR > 25

- (b) P/F < 400
(c) PaO₂ > 50mmHg
(d) TV < 5ml/kg
65. One of the criteria for successful weaning is -
(a) RSBI > 120
(b) RSBI > 110
(c) RSBI > 100
(d) RSBI < 100
66. Cyanide toxicity is an example of _____ type of hypoxia.
(a) hypoxic
(b) hemic
(c) histotoxic
(d) circulatory
67. Blood is routinely screened (serologically) for _____.
(a) Hepatitis A
(b) Severe acute respiratory syndrome (SARS)
(c) West Nile virus
(d) Bovine spongiform encephalitis (BSE, or mad cow disease)
68. Normal tracheal capillary pressure is -
(a) 10 to 15 mm Hg
(b) 15 to 20 mm Hg
(c) 25 to 30 mm Hg
(d) 35 to 40 mm Hg
69. What size does a number 7 endotracheal tube indicate?
(a) 7-mm internal diameter (ID)
(b) 7-mm external diameter
(c) 7-mm external circumference
(d) 7-mm internal circumference
70. What percentage of a term newborn's total body weight consists of water?
(a) 45%
(b) 60%
(c) 75%
(d) 90%
71. MH is believed to involve a generalized disorder of membrane permeability to -
(a) Sodium
(b) Potassium
(c) Calcium
(d) Magnesium
72. Electrocardiographic (ECG) changes associated with hyperkalemia include -
(a) Increased P wave amplitude
(b) Shortened PR interval
(c) Narrowed and peaked T waves
(d) Increase in U-wave amplitude
73. Which of the factors in adults listed below is the strongest independent predictor of post-operative nausea and vomiting (PONV) in most studies?
(a) Female gender
(b) History of PONV
(c) History of migraines
(d) History of cigarette smoking
74. Remifentanyl is metabolized primarily by -
(a) Kidneys
(b) Liver
(c) Non-specific esterases
(d) Pseudocholinesterase
75. Allergic reactions occurring during the immediate peri-operative period are MOST commonly attributable to administration of:
(a) Muscle relaxants
(b) Local anaesthetics
(c) Antibiotics
(d) Opioids

PART - II
(Conventional Type Questions)

Answer any 10 (ten) from Questions 76 to 88. Each question carries 5 marks.

[10 x 5 = 50]

76. Discuss PDPH and its management.
77. What are bedside pulmonary function tests. Discuss their importance in anaesthesia.
78. What is MAC. Discuss the factors affecting MAC.
79. Discuss the Mapleson's classification of breathing circuits.
80. Describe physiological effects of pneumoperitoneum.
81. Discuss Oculocardiac reflex.
82. Describe Dibucaine Number.
83. Discuss Management of Hyperkalemia.
84. Write a short note on Capnography.
85. Write a short note on Fat embolism syndrome.
86. Discuss Venture principle and its applications in anaesthesia.
87. Discuss Safety features in anaesthesia machine.
88. Write a short note on Weaning criteria.

PART - III
(Conventional Type Questions)

Answer any 5 (five) from Questions 89 to 96. Each question carries 10 marks.

[5 x 10 = 50]

89. Discuss the "Bier's block" and its clinical implications.
90. Discuss the anaesthetic management of congenital diaphragmatic hernia.
91. Discuss the "Difficult airway algorithm".
92. Describe the physiological changes during one lung ventilation.
93. Enumerate the differences between Defibrillation and Cardioversion.
94. Discuss the anaesthetic management of a patient on anticoagulant therapy posted for lower limb surgery.
95. Write a short note on "Tracheostomy".
96. Write a short note on "TURP- syndrome".

PART - IV
(Conventional Type Questions)

Answer any 2 (two) from Questions 97 to 100. Each question carries 25 marks.

[2 x 25 = 50]

97. Describe preoperative preparations and anaesthetic management of a case of pheochromocytoma.
98. Discuss the role of anaesthesiologist in management of COVID positive patient in ICU.
99. Describe various tests performed before declaring any patient as brain dead and management of the likely organ donor in ICU.
100. Discuss anaesthetic management of pregnant lady with severe Mitral Stenosis posted for LSCS.

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