



Question Booklet Sl. No.

Series

A

CODE : IEM – 25

Write here Roll Number and Answer Sheet No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2.5 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 40 questions. Candidates must note that there will be 4 Sections in the question paper :

Sections	Test Components	No. of Questions	Page No.
A	General Awareness	1-10	5 – 6
B	General Intelligence and Reasoning Ability	11-20	7 – 8
C	Arithmetical Ability	21-30	9
D	Test of English Language and Comprehension	31-40	10 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method	Wrong Method	Wrong Method	Correct Method
☐ ☒ ☐ ☐	☐ ☒ ☐ ☐	☐ ☒ ☐ ☐	☐ ☒ ☐ ☐

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



SECTION – A
(General Awareness)

1. Arunachal Pradesh became a full-fledged state of India in
 - (a) 1962
 - (b) 1990
 - (c) 1987
 - (d) None of these
2. K2, the second highest peak in the world, is located in which mountain range ?
 - (a) Karakoram Range
 - (b) Himalaya Range
 - (c) Hindu Kush Range
 - (d) Aravalli Range
3. Who is the ex-officio Chairman of the Rajya Sabha ?
 - (a) Prime Minister of India
 - (b) President of India
 - (c) Speaker of Lok Sabha
 - (d) Vice President of India
4. The Wimbledon Championship is associated with which sport ?
 - (a) Cricket
 - (b) Squash
 - (c) Lawn Tennis
 - (d) None of these
5. Which planet of our solar system also referred to as the “Evening Star” ?
 - (a) Mars
 - (b) Venus
 - (c) Jupiter
 - (d) Saturn



6. The Planning Commission of India was replaced by which institution in 2015 ?
 - (a) NITI Aayog
 - (b) Finance Commission
 - (c) Economic Advisory Council
 - (d) National Development Council

7. Pandit Shivkumar Sharma is famous for playing which musical instrument ?
 - (a) Sarod
 - (b) Sitar
 - (c) Tabla
 - (d) Santoor

8. Which of the following best defines an antacid ?
 - (a) A substance that increases the acid level in the stomach
 - (b) A substance that neutralizes the excess acid in the stomach
 - (c) A substance that aids digestion by producing enzymes in the stomach
 - (d) A substance that acts as a painkiller and reduces the pain in the stomach

9. The Pulitzer Prize is presented by which organization/institution ?
 - (a) The United Nations
 - (b) Columbia University
 - (c) Harvard University
 - (d) The American Press Association

10. During the British period, Vernacular Press Act was passed in which year ?
 - (a) 1878
 - (b) 1888
 - (c) 1858
 - (d) None of these



SECTION – B
(General Intelligence and Reasoning Ability)

11. Complete the following analogy.
Rupee : India :: Yen : ?
(a) Turkey (b) Bangladesh
(c) Japan (d) China
12. Pointing to a man in a photograph, a man said to a woman, “his mother is the only daughter of your father”. How is the woman related to the man in the photograph ?
(a) Mother (b) Sister
(c) Wife (d) Daughter

Direction (Q. No. 13 and 14) : Replace the question mark (?) in the series given below with the suitable option.

13. 3, 20, 63, 144, 275, ?
(a) 554 (b) 548 (c) 468 (d) 354
14. 1, 4, 9, 16, 25, 36, ?
(a) 49 (b) 38 (c) 41 (d) 35
15. A man looks at a picture and says, “Brothers and sisters, I have none. But the man in the picture is my father’s son”. Who is in the picture ?
(a) His uncle (b) Himself
(c) His son (d) His grandfather
16. A recipe calls for 2 cups of sugar to make 24 cookies. How many cups of sugar are needed for 36 cookies ?
(a) 2 (b) 3 (c) 4 (d) 5
17. Correct the following equation by interchanging the two signs and two numbers.
 $7 \times 6 + 5 - 4 = 33$
(a) $-$, $\times$ and 4, 5 (b) $\times$, $+$ and 4, 5
(c) $+$, $-$ and 5, 6 (d) $\times$, $-$ and 5, 6



18. In the following question three statements followed by four conclusions are given. Read the statements carefully and decide which of the given conclusions logically follows.

Statements :

All cars are jeeps.
All jeeps are buses.
All buses are trucks.

Conclusions :

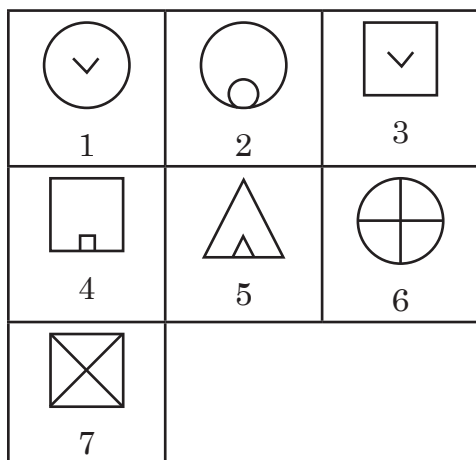
- I. All trucks are buses.
II. All buses are jeeps.
III. All jeeps are cars.
IV. All cars are trucks.

- (a) None follows
(b) All follows
(c) Only III and IV follow
(d) Only IV follows
19. Choose the correct mirror image from the given alternatives, when mirror is placed on the line AB.



- (a) (b) (c) (d)

20. In the following question, group the figures into different classes on the basis of their orientation, shape etc.



- (a) (1, 2, 6), (3, 4, 7), (5)
(b) (1, 3), (2, 6), (4, 5, 7)
(c) (1, 2, 6, 7), (3), (4, 5)
(d) (1, 3), (2, 4, 5), (6, 7)



SECTION – C
(Arithmetical Ability)

21. The value of $\frac{1}{1+9^{n-m}} + \frac{1}{1+9^{m-n}}$, where m, n are natural numbers, is
(a) 1 (b) -1 (c) 9 (d) $\frac{1}{9}$
22. The value of $(5.3)^2 - (4.7)^2$ is
(a) 0.06 (b) 6 (c) 0.6 (d) 60
23. 3 chairs and 2 tables cost Rs. 700 and 5 chairs and 3 tables cost Rs. 1,100. What is the cost of 2 chairs and 2 tables ?
(a) Rs. 750 (b) Rs. 600 (c) Rs. 820 (d) Rs. 560
24. The HCF of 18, 27 and 81 is
(a) 81 (b) 3 (c) 18 (d) 9
25. What percent is 3 minutes 36 seconds of an hour ?
(a) 4% (b) 16% (c) 6% (d) 8%
26. The average of 25 numbers is 8. If each number is multiplied by 12, then what will be the new average ?
(a) 20 (b) 28 (c) 4 (d) 96
27. A trader earns Rs. 20 on selling a product at 10% above the cost, its cost price is
(a) Rs. 125 (b) Rs. 150 (c) Rs. 200 (d) Rs. 250
28. What will be the difference between the compound interest and simple interest on Rs. 28,000 at 15% p.a. at the end of two years ?
(a) Rs. 600 (b) Rs. 650 (c) Rs. 620 (d) Rs. 630
29. If a pair of shoes were sold at a discount of 22% to Rs. 390, the original price (or cost price) of the shoes is
(a) Rs. 500 (b) Rs. 510 (c) Rs. 495 (d) Rs. 550
30. What will be the cost of fencing a circular garden of radius 28 m at the rate of Rs. 45 per metre ?
(a) Rs. 7,920 (b) Rs. 8,160 (c) Rs. 8,340 (d) Rs. 8,580



SECTION – D
(Test of English Language and Comprehension)

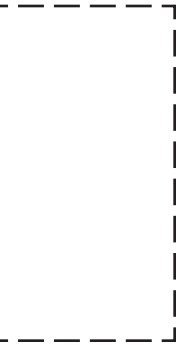
31. Choose the opposite word (antonym) to the word 'PERIL'.
- (a) Fatal
 - (b) Mortal
 - (c) Uncertainty
 - (d) Safety
32. Choose the correctly spelt word.
- (a) Violence
 - (b) Voilence
 - (c) Volency
 - (d) Violance
33. Choose the correct option that best explains the given sentence.
A person who looks at the bright side of things.
- (a) Cynic
 - (b) Pessimist
 - (c) Optimist
 - (d) Sycophant
34. Choose the correct indirect speech form of the sentence given below:
"Do you want some more sweets ?" asked my friend.
- (a) My friend asked me if I want some more sweets.
 - (b) My friend said to me if I wanted some more sweets.
 - (c) My friend asked me whether I wanted some more sweets.
 - (d) My friend asked me that I wanted some more sweets.
35. Choose the correct synonym for the word 'CATASTROPHE'.
- (a) Disaster
 - (b) Celebration
 - (c) Deforestation
 - (d) Windfall



Direction (Q. No. 36 to Q. No. 40) : Read the following passage carefully and choose the correct answers for the questions.

The ancient city of Petra, nestled in the heart of Jordan's rugged landscape, stands as a testament to human ingenuity and architectural brilliance. Carved into sandstone cliffs by the Nabataeans, a skilled civilization that thrived centuries before the rise of Rome, Petra showcases a unique blend of natural beauty and human artistry. The city's iconic Treasury, a magnificent facade carved into a cliff face, is a prime example of Nabataean architectural prowess, while the intricate network of tunnels and pathways allows visitors to explore the city's hidden wonders. Petra's survival, despite the harsh desert environment, is a testament to the Nabataeans' mastery of water management, with ingenious systems designed to collect and store rainwater. Today, Petra is a UNESCO World Heritage site, attracting millions of tourists each year, eager to witness the awe-inspiring legacy of this ancient civilization.

36. Where is Petra located ?
(a) In the heart of Italy (b) In the heart of Jordan
(c) In the heart of Egypt (d) In the heart of Greece
37. What civilization carved Petra into the sandstone cliffs ?
(a) The Romans (b) The Egyptians
(c) The Greeks (d) The Nabataeans
38. What is the Treasury of Petra ?
(a) A palace
(b) A water reservoir
(c) A magnificent facade carved into a cliff face
(d) None of the above
39. What is the meaning of the word "ingenuity" as used in the passage ?
(a) Simplicity (b) Creativity (c) Hardship (d) Obedience
40. What was the Nabataeans mastery of ?
(a) Warfare (b) Water management
(c) Astronomy (d) Agriculture
-





Series

A

CODE : IEM – 25(A)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component**No. of Questions****Page No.**

Paper – 1 : Dental Mechanic/Technician

1-50

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 1 : Dental Mechanic/Technician

1. The attractive force of the earth for bodies on its surface is called
(a) Energy (b) Density (c) Inertia (d) Gravity
2. The density of a substance is the
(a) quantity of matter in the unit volume
(b) weight of a body per unit area
(c) force acting per unit mass
(d) volume occupied per unit mass
3. The molecule is considered to be the smallest particle into which a substance can be divided without
(a) changing its physical state
(b) altering its temperature
(c) affecting its mass
(d) destroying the identity of that substance
4. Archimedes' principle states that a body immersed in a fluid experiences an upward force equal to
(a) The volume of the body
(b) The mass of the fluid
(c) The weight of the fluid displaced by the body
(d) None of the above
5. _____ is the primary factor that determines whether a substance is solid, liquid or gas.
(a) Mass (b) Temperature (c) Volume (d) Color
6. The latent heat of fusion is defined as the quantity of heat required to
(a) raise the temperature of a solid by 1°C
(b) change 1g of a solid at melting point to a liquid at the same temperature
(c) convert liquid to gas at any temperature
(d) increase molecular motion



7. The surface tension is conveniently measured as
 - (a) Force per unit area
 - (b) Force per unit length
 - (c) Pressure per unit length
 - (d) Pressure per unit volume
8. The moment of a force is the product of that force by the
 - (a) perpendicular distance from the axis of rotation to the line of direction of the force
 - (b) mass of the body on which it acts
 - (c) time during which the force acts
 - (d) angle between two forces
9. The common effect of force, as the term is used in mechanics, is
 - (a) heat or light
 - (b) motion or strain in bodies of matter
 - (c) change of density
 - (d) increase in mass
10. A lever is a mechanical device such that a force applied at one point produces or tends to produce rotation about an axis called the fulcrum, against a
 - (a) pressure which accelerates motion
 - (b) resistance which tends to prevent such rotation
 - (c) weight that increases velocity
 - (d) force that reduces mass
11. A screw is an application of
 - (a) Inclined plane
 - (b) Lever
 - (c) Gear system
 - (d) Pulley
12. The distance between two consecutive threads, measured parallel to the axis of the cylinder, is the
 - (a) depth of the screw
 - (b) diameter of the screw
 - (c) pitch of the screw
 - (d) none of the above
13. A torsion balance is a mechanism by which it is possible to measure a
 - (a) force causing linear acceleration
 - (b) change in gravitational pull
 - (c) decrease in rotational inertia
 - (d) moment of force tending to twist a wire



14. The types of behavior that a substance exhibits in chemical reactions are called its
(a) optical properties (b) mechanical properties
(c) chemical properties (d) thermal properties
15. Decomposition is a chemical reaction in which the constituent entities of a substance
(a) combine to form a complex substance
(b) break down into simpler forms
(c) change from solid to liquid
(d) react with oxygen to form oxides
16. The fundamental unit of the element is the
(a) atom (b) molecule (c) ion (d) radical
17. The degree to which molecules of a substance are arranged in an orderly pattern with respect to each other is a measure of its
(a) viscosity (b) crystallinity (c) solubility (d) reactivity
18. A small region of a macromolecular material in which portions of large molecules are linked to each other in some regular way is called a
(a) crystallite (b) micelle
(c) polymer chain (d) all of the above
19. In fibrous polymeric structures, the small aggregates of crystallites just large enough to appear as a small thread-like unit under a high-power microscope are called
(a) micelles (b) monomers (c) lamellae (d) fibrils
20. The oral cavity, commonly referred to as the mouth, is also called the
(a) nasal cavity (b) buccal cavity (c) thoracic cavity (d) pelvic cavity
21. The extent of the oral cavity is demarcated by the hard and soft palates superiorly and the _____ inferiorly.
(a) lips and cheeks (b) oral vestibule
(c) tongue and floor of the mouth (d) pharynx



22. The mandible is a movable sturdy bone that articulates with the rest of the skull by a joint on either side called the
- (a) zygomatic arch
 - (b) occipital joint
 - (c) maxillary joint
 - (d) temporomandibular joint
23. The coronoid process is a sharp triangular projection from the upper border of the ramus that provides attachment to
- (a) muscles of facial expression
 - (b) muscles of mastication
 - (c) muscles of the tongue
 - (d) ligaments of the TMJ
24. Muscles of mastication are related to the jaws and are responsible for the masticatory function and
- (a) smiling
 - (b) balance
 - (c) eye movement
 - (d) speech
25. Appropriate chemicals are used to disinfect the impression. This is an essential procedure to prevent
- (a) dehydration of the impression
 - (b) distortion of the material
 - (c) cross-infection and exposure of dental auxiliary and lab personnel
 - (d) polymerization shrinkage
26. A 2% glutaraldehyde solution is commonly used and is recommended for
- (a) hydrocolloids only
 - (b) alginate impressions
 - (c) silicones and polysulphide impressions
 - (d) gypsum models
27. A working cast is a master cast that reproduces the entire arch including the prepared and unprepared teeth, relevant soft tissues and
- (a) periodontal pockets
 - (b) edentulous areas
 - (c) gingival sulcus
 - (d) bony landmarks
28. Advantages of indirect technique of wax pattern include
- (a) Allows better visualization of the restoration
 - (b) Margins can be accessed and finished better
 - (c) Better standardization in technique as it is fabricated in a laboratory
 - (d) All of the above



29. Type II inlay wax is used to fabricate
(a) direct restorations (b) temporary crowns
(c) indirect restorations (d) denture bases
30. In Kennedy's classification, unilateral edentulous areas located posterior to the remaining natural teeth refer to
(a) Class II (b) Class I (c) Class III (d) Class IV
31. The clasp assembly minor connector connects the clasp assembly to the major connector and must be
(a) rigid with sufficient bulk, but the bulk must be concealed
(b) flexible and highly visible
(c) elastic and narrow
(d) thin and easily bendable
32. Occlusal rests are placed on the occlusal surface of _____ teeth.
(a) anterior (b) incisor (c) posterior (d) deciduous
33. In a centrifugal casting machine, the spring-loaded arm pushes the alloy into the mould by
(a) gravitational pressure (b) hydraulic compression
(c) centrifugal force (d) vacuum suction
34. During the casting of a framework, the invested wax pattern is burnt out in a
(a) casting rod (b) curing chamber
(c) metal crucible (d) burnout furnace
35. Maxillary teeth are positioned labial to the ridge and mandibular teeth on the crest of the ridge due to the
(a) resorptive pattern of the ridge (b) pattern of teeth
(c) shape of the denture (d) shape of the gums
36. The standard technique for the retention of facial prostheses has been through the use of
(a) magnets (b) adhesives
(c) clasps (d) surgical sutures



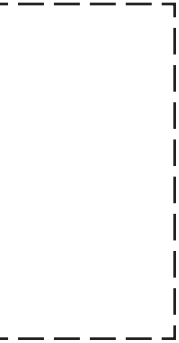
37. Which of the following are benefits of implant-retained prostheses ?
(a) Improved retention and stability of the prostheses
(b) Elimination of occasional skin reactions to adhesives
(c) Ease and enhanced accuracy of prosthesis placement
(d) All of the above
38. An extraoral prosthesis is also called the
(a) mandibular prosthesis (b) occlusal prosthesis
(c) facial prosthesis (d) upper limb prosthesis
39. Ideal properties of facial prostheses must include which of the following ?
(a) Tissue compatibility (b) Durability
(c) Lightness in weight and flexibility (d) All of the above
40. The mineral gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) is usually _____ in color and is found as a compact mass.
(a) gray to black (b) pink to reddish
(c) blue to green (d) white to yellowish white
41. The process of heating gypsum for manufacturing plaster is known as
(a) calcination (b) solidification
(c) hydration (d) none of the above
42. Shellac base plate is an example of _____ denture base materials.
(a) temporary (b) permanent (c) metallic (d) all of the above
43. An example of a temporary bonding cement is a zinc oxide eugenol based cement called
(a) Glass ionomer cement (b) Zinc phosphate cement
(c) Temp Bond (d) Resin cement
44. Pulp capping is a process of placing a specialized agent in contact with or in close proximity to the pulp with the intention of
(a) Removing the pulp completely
(b) Encouraging formation of new dentin (secondary dentin) and promoting healing of the pulp
(c) Whitening the tooth
(d) Strengthening the enamel



45. In metallurgy and in most other fields, the measure of hardness is taken as the
- (a) Resistance to indentation (b) Resistance to bending
(c) Resistance to corrosion (d) All of the above
46. In dentistry, the type of solder more commonly used is
- (a) Low-temperature solders (b) Hard solders
(c) Reactive solders (d) None of the above
47. Alkalies like sodium and potassium break the silica network, lower the fusion temperature and are therefore known as
- (a) Opacifiers (b) Rods (c) Fluxes (d) All of the above
48. Tarnish generally occurs in the oral cavity due to
- (a) Formation of hard and soft deposits on the surface of the restoration, e.g. calculus, mucin and plaque
(b) Pigment producing bacteria, produce stains
(c) Formation of thin films of oxides, sulfides or chlorides
(d) All of the above
49. A review and examination of objective information (facts and figures) to test the adequacy and effectiveness of progress towards specific objectives is known as
- (a) Diagnosis (b) Prognosis
(c) Audit (d) Therapeutic planning
50. Duplicating computer data so that a copy can be stored in a separate building away from the main database is known as
- (a) Back-up (b) Encryption
(c) Data formatting (d) None of the above
-



IEM – 25(A)





Series

A

CODE : IEM – 25(B)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component**No. of Questions****Page No.**

Paper – 2 : Draughtsman Grade-III/Junior Estimator

1-50

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 2 : Draughtsman Grade-III/Junior Estimator

1. BIS stands for
 - (a) Bureau of Indian Standards
 - (b) Basic Industrial Service
 - (c) Binary Information System
 - (d) Basic Input Signal
2. Two essential components of brick masonry are
 - (a) Bricks and Coarse aggregate
 - (b) Bricks and Concrete
 - (c) Bricks and Sand
 - (d) Bricks and Mortar
3. _____ is an example of sedimentary rock.
 - (a) Granite
 - (b) Sand stone
 - (c) Basalt
 - (d) Pumice
4. The finishing of mortar joints in masonry is termed as
 - (a) Curing
 - (b) Pointing
 - (c) Pinning
 - (d) Scaffolding
5. _____ are the three principal constituents of cement.
 - (a) Clay, Ammonia, Sodium
 - (b) Sand, Clay, Polyurethane
 - (c) Clay, Sand, Copper
 - (d) Lime, Silica, Alumina
6. The ratio of the volume of water to volume of cement used in a concrete mix is termed as
 - (a) Sand aggregate ratio
 - (b) Water cement ratio
 - (c) Water reinforcement ratio
 - (d) None of the above
7. _____ are added to the paint to make it thin so that it can be easily applied on surfaces.
 - (a) Binders
 - (b) Driers
 - (c) Pigments
 - (d) Solvents
8. French polish is a
 - (a) Spirit varnish
 - (b) Oil paint
 - (c) Emulsion paint
 - (d) None of the above
9. A longer face of the brick is known as
 - (a) Bat
 - (b) Stretcher
 - (c) Perpend
 - (d) None of the above



10. Dry rubble masonry is
 - (a) Rubble Masonry in which only cement mortar is used
 - (b) Rubble Masonry in which only lime mortar is used
 - (c) Rubble Masonry in which only mud mortar is used
 - (d) Rubble Masonry constructed without the use of mortar
11. The maximum pressure which the soil can carry safely without risk of shear failure is called the
 - (a) Weak bearing capacity
 - (b) Safe bearing capacity
 - (c) Linear bearing capacity
 - (d) Deep bearing capacity
12. A spread footing which supports two columns is termed as
 - (a) Isolated footing
 - (b) Grillage footing
 - (c) Combined footing
 - (d) None of the above
13. _____ walls are those which are designed to carry superimposed loads (transferred through roofs, etc.), in addition to their own weight (self weight).
 - (a) Non load bearing
 - (b) Load bearing
 - (c) Partition
 - (d) Parapet
14. Which of the following is not a type of partition wall ?
 - (a) Glass partition
 - (b) Metal lath partition
 - (c) Timber partition
 - (d) Guniting partition
15. Which of the following is not a component of Raking Shores ?
 - (a) Purlin
 - (b) Rakers
 - (c) Bracing
 - (d) Sole plate
16. The process of placing a new foundation under an existing one or strengthening an existing foundation is called _____ of foundations.
 - (a) Grouting
 - (b) Dadoing
 - (c) Scaffolding
 - (d) Underpinning
17. Which of the following material is not used as a Damp proofing course ?
 - (a) Hot bitumen
 - (b) Mastic asphalt
 - (c) Cement concrete
 - (d) None of the above



18. _____ termites live in dry wood in small colonies, without maintaining any connection with the soil.
(a) Dry wood (b) Subterranean
(c) Subsurface (d) All of the above
19. The highest central wedge shaped block of an arch is known as
(a) Abutment (b) Pier (c) Keystone (d) Soffit
20. Which of the following is a one centred arch ?
(a) Semi-circular arch (b) Elliptical arch
(c) Pointed arch (d) Venetian arch
21. _____ are structural members designed to support the loads of the portion of the wall situated above the openings, and then transmit the load to the adjacent wall portions over which these are supported.
(a) Pile and Raft (b) Arches and Lintels
(c) Chajja and Skirting (d) Parapet and Pier
22. Which of the following is not a type of lintel ?
(a) Timber lintels (b) Stone lintels
(c) Reinforced concrete lintels (d) None of the above
23. Which of the following is not a type of Lengthening, Spliced or Longitudinal Joints used to lengthen a wooden member ?
(a) Lapping joint (b) Scarfing joint
(c) Notching joint (d) Fishing joints
24. Which of the following fastener commonly used in framing timber work ?
(a) Holdfast (b) Horn (c) Nail (d) Mullion
25. _____ is a vertical window provided on the sloping roof.
(a) Casement window (b) Bay window
(c) Dormer window (d) None of the above
26. The stair that has a wider flight at the bottom and bifurcates into two narrower flights is known as a
(a) Straight flight staircase (b) Dog legged staircase
(c) Bifurcated staircase (d) Spiral staircase



27. _____ is formed by four sloping surfaces in four directions.
(a) Lean-to-roof (b) Gable roof
(c) Hip roof (d) Gambrel roof
28. Floor Area Ratio (FAR) is
(a) The ratio of building height to plot area
(b) The ratio of the total covered area of all floors of a building to the total plot area
(c) The ratio of open space to built-up area
(d) The percentage of the plot that can be covered at ground level
29. Which of the following editing command is not there in Autocad ?
(a) Trim (b) Mirror
(c) Array (d) None of the above
30. _____ structure comprises of slabs resting on beams which are supported by a network of columns.
(a) Framed (b) Load bearing
(c) Space frame (d) Fink truss
31. A pipe which carries discharge from WC, urinal or any other soil appliances is known as
(a) Ventilation pipe (b) Rain water pipe
(c) Soil pipe (d) Water supply pipe
32. Which of the following is not used as a system of plumbing for drainage of buildings ?
(a) One pipe system (b) Two pipe system
(c) Single stack system (d) Round pipe system
33. A _____ is a covered pit dug in pervious soil to absorb effluent discharged from a septic tank.
(a) Soak pit (b) Gully pit (c) Grease pit (d) Silt pit
34. Well foundation is example for _____ foundation.
(a) Deep (b) Linear
(c) Radial (d) None of the above



35. Which of the following is not a type of caisson ?
(a) Open Caisson (b) Abutment Caisson
(c) Box Caisson (d) Pneumatic Caisson
36. _____ is the anticipated or probable cost of a work and is usually prepared before the construction is taken up.
(a) Estimate (b) Invoice (c) Ledger (d) Voucher
37. Plastering usually 12 mm thick is calculated in
(a) Running Metre (b) Cubic Metre
(c) Square Metre (d) Perimetre
38. _____ estimate is a detailed estimate and is prepared when additional works are required to supplement the original works, or when further development is required during the progress of the work.
(a) Preliminary (b) Approximate
(c) Supplementary (d) Rough
39. The determination of rate per unit of a particular item of work, from the cost of quantities of materials, the cost of labourers and other miscellaneous petty expenses require for its completion is known as the
(a) Lumpsum (b) Analysis of rate
(c) Contingencies (d) Mobilization fund
40. _____ is a list of rates for various items of works to facilitate the preparation of estimates and to serve as a guide in setting rates in contract agreements.
(a) Security deposit (b) Abstract cost
(c) Schedule of rates (d) Retention money
41. _____ is the art of determining the relative positions of points on, above or beneath the surface of the earth by means of direct or indirect measurements of distance, direction and elevation.
(a) Topography (b) Surveying
(c) Planning (d) None of the above



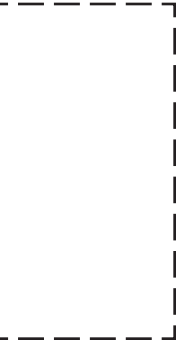
42. _____ is that type of surveying in which only linear measurements are made in the field.
- (a) Chain Surveying (b) Inclined Surveying
(c) Geological Surveying (d) Astronomical Surveying
43. _____ is a branch of surveying the object of which is to find the elevations of given points with respect to a given or assumed datum and to establish points at a given elevation or at different elevations with respect to a given or assumed datum.
- (a) Underpinning (b) Excavating
(c) Grouting (d) Levelling
44. The vertical distance between any two consecutive contours is called
- (a) Contour interval (b) Contour division
(c) Contour datum (d) None of the above
45. Which of the following is the most precise instrument designed for the measurement of horizontal and vertical angles and is widely used in surveying for tasks such as laying off horizontal angles, locating points on a line, prolonging survey lines, establishing grades, determining differences in elevation and setting out curves ?
- (a) Theodolite (b) Clinometer
(c) Anemometer (d) Levelling staffs
46. EDM in a total-station survey stands for
- (a) Electric Data Module
(b) Electromagnetic Distance Measurement
(c) Elevation Detection Meter
(d) External Data Monitor



47. A _____ is an instrument used for reproducing, enlarging or reducing the maps.
- (a) Scale of chord (b) Vernier scale
(c) Linear scale (d) None of the above
48. In surveying _____ is the average height of the sea for all stages of the tides.
- (a) Increased level
(b) Reduced level
(c) Mean sea level
(d) None of the above
49. _____ is the science and art of obtaining accurate measurements by use of photographs, for various purposes such as the construction of planimetric and topographic maps, classification of soils, interpretation of geology, acquisition of military intelligence and the preparation of composite pictures of the ground.
- (a) Photogrammetry (b) Contouring
(c) Geodesy (d) None of the above
50. _____ is broadly defined as science and art of collecting information about objects, area or phenomena from distance without being in physical contact with them.
- (a) GPS (b) Remote sensing
(c) Cartography (d) Geodesy
-



IEM – 25(B)





Series

A

CODE : IEM – 25(C)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component**No. of Questions****Page No.**

Paper – 3 : Road Safety and Traffic Signages

1-50

5-11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 3 : Road Safety and Traffic Signages

1. Why is overtaking considered dangerous in certain areas ?
 - (a) It causes traffic jams
 - (b) It increases fuel consumption
 - (c) Roads are narrow, bridges and turns make overtaking risky
 - (d) None of the above
2. Under Rule 108, which vehicle is allowed to use a blinker type of red light with purple glass ?
 - (a) Private vehicle with medical permit
 - (b) Fire truck
 - (c) Police patrol car
 - (d) Ambulance van used for emergency call
3. What must a driver ensure before operating a motor vehicle ?
 - (a) That the vehicle is properly licenced, registered and insured
 - (b) That the vehicle has tinted windows
 - (c) That the vehicle has a Global Positioning System
 - (d) That the vehicle has a full tank of fuel
4. Where is the compulsory minimum speed sign typically placed ?
 - (a) At the exit of a highway
 - (b) At the entrance to a road
 - (c) Inside parking lots
 - (d) At toll booths
5. Which of the following is not a recommended condition for a helmet ?
 - (a) Strong helmet strap
 - (b) Snug fit all around
 - (c) Cracks in the shell
 - (d) Free from frayed strips
6. What does the “Compulsory Keep Left” sign instruct drivers to do ?
 - (a) Turn left at the next junction
 - (b) Drive only in the right lane
 - (c) Drive in the left lane for smooth traffic flow
 - (d) Stop immediately
7. What is the purpose of the ‘Compulsory Cycle Track’ sign ?
 - (a) To ensure cyclists should compulsorily use this track
 - (b) To allow all vehicles to use the cycle track
 - (c) To indicate a shared path for pedestrians and cyclists
 - (d) None of the above



8. On a road without a divider and with two-way traffic, what driving method should be followed ?
 - (a) Drive on the right side to avoid oncoming traffic
 - (b) Drive in the center of the road
 - (c) Drive in zigzag pattern to avoid potholes
 - (d) Drive in the left lane to maintain smooth flow
9. What kind of traffic discipline is expected where the “Give Way” sign is installed ?
 - (a) Specific lane discipline
 - (b) No lane discipline
 - (c) Free parking zones
 - (d) Random movement of vehicles
10. What should pedestrians do if the green pedestrian signal is flashing and they are already partially across the street ?
 - (a) Stop and wait in the middle
 - (b) Return to the footpath
 - (c) Wait for the next green signal
 - (d) Quickly cross to the nearest refuge island
11. What is the purpose of pavement markings on roads ?
 - (a) To decorate the road surface
 - (b) To indicate toll charges
 - (c) To display advertisements
 - (d) To guide, warn and control road users
12. What does the ‘Cattle Warning’ sign indicate ?
 - (a) Area restricted for animal movement
 - (b) Presence of a veterinary clinic nearby
 - (c) Possibility of cattle straying on the road
 - (d) None of the above
13. What does the ‘Ferry Warning’ sign signify ?
 - (a) A ferry service is available to cross the river
 - (b) Boats are prohibited in the area
 - (c) A bridge is under construction
 - (d) The road ends at a lake



14. What precaution should a driver take upon seeing the 'Falling Rocks' sign ?
(a) Drive carefully to avoid crash (b) Increase speed to pass quickly
(c) Stop and wait for clearance (d) Turn on hazard lights
15. Which of the following is true about T-intersection ?
(a) It allows U-turns only
(b) Traffic can continue straight through the intersection
(c) It is typically found on highways only
(d) It requires drivers to turn either left or right as the road ends
16. What is the reason for maintaining clean glass surfaces during night driving ?
(a) To reduce fuel consumption (b) To avoid traffic fines
(c) To improve sound insulation (d) To minimize light reflection
17. What is the purpose of retro-reflective tapes on vehicles ?
(a) To decorate the vehicle
(b) To reduce fuel consumption
(c) To improve engine performance
(d) To ensure visibility even when vehicle taillights go off
18. What additional lights should be turned on to ensure visibility in fog ?
(a) Only hazard lights (b) Fog lamps and parking lights
(c) Interior cabin lights (d) Brake lights
19. Where should the vehicle be positioned after coming to a stop due to brake failure ?
(a) In the middle of the road (b) On a bridge
(c) Near a traffic signal (d) Off the roadway
20. What is ensured at the planning stage of road design according to the Government of India's road safety measures ?
(a) Toll collection booths (b) Road safety as an integral part
(c) Installation of traffic cameras (d) Placement of advertising boards
21. Which organization is responsible for implementing road safety audits and installing road furniture and markings ?
(a) National Highways Authority of India
(b) Ministry of Home Affairs
(c) Central Pollution Control Board
(d) Indian Railways



22. Who issues the Driving License in India ?
(a) Municipal Corporation (b) Police Department
(c) Passport Office (d) None of the above
23. What is the consequence of failing to follow instructions stipulated in traffic law ?
(a) It is an offence (b) It is a warning
(c) It is a suggestion (d) It is a minor infraction
24. What type of test is conducted for issuing a Learner's License in India ?
(a) Multiple type objective questions (b) Oral interview
(c) Road driving test (d) Written essay test
25. What is the minimum age required to apply for a permanent driving licence in India ?
(a) 18 years (b) 16 years (c) 24 years (d) 21 years
26. How long is the grace period for renewing a permanent driving licence after its expiry ?
(a) 30 days (b) 15 days (c) 45 days (d) 60 days
27. What is the minimum waiting period after obtaining a learner license before applying for a Permanent Driving License ?
(a) 15 days (b) 30 days (c) 60 days (d) 90 days
28. Which Form is required when applying for a Permanent Driving License ?
(a) Form No.1 (b) Form No.4
(c) Form No.2 (d) None of the above
29. Which Form is used for issuing a certificate of insurance for a motor vehicle under Section 141 of The Central Motor Vehicle Rules 1989 ?
(a) Form 52 (b) Form 53 (c) Form 51 (d) Form 50
30. What is the validity period of a cover note issued by an authorised insurer under Section 142 rule (1) of The Central Motor Vehicle Rules 1989 ?
(a) 30 days (b) 45 days (c) 60 days (d) 90 days
31. What must the insurer do before the expiry of a cover note under Section 142 rule (2) of The Central Motor Vehicle Rules 1989 ?
(a) Renew the cover note (b) Issue a certificate of fitness
(c) Issue a policy of insurance (d) None of the above



32. When does the stand transfer of a motor vehicle's insurance policy take effect under Section 144 of The Central Motor Vehicle Rules 1989 ?
- (a) From the date of registration
 - (b) From the date of insurer's approval
 - (c) From the date of policy renewal
 - (d) From the date of transfer of ownership
33. What must be recorded if the original certificate is found after a duplicate is issued under Section 147 rule (vii) of The Central Motor Vehicle Rules 1989 ?
- (a) Reason for recovery
 - (b) Location of surrender
 - (c) Date of surrender
 - (d) Name of person who found it
34. Which road users are explicitly covered in the Highway Code ?
- (a) Drivers, Pedestrians, Traffic Police, Cyclists
 - (b) Motorists, Truck Drivers, Cyclists, Pedestrians
 - (c) Pedestrians, Animals Drawn Vehicles, Cyclists, Motor-cyclists and other Motorised vehicles
 - (d) All Licensed drivers and Pedestrians
35. What colour are box junction markings ?
- (a) Red
 - (b) Blue
 - (c) White stripes
 - (d) Yellow crossed diagonal lines
36. What does the Code recommend regarding spacing around your vehicle ?
- (a) Maintain space only in front
 - (b) Maintain space only behind
 - (c) Keep a cushion of space on all sides
 - (d) No spacing needed
37. What is "driver reaction time" ?
- (a) Time taken to start car
 - (b) Time between observing need for action and taking action
 - (c) Time taken to fill fuel
 - (d) Time to park
38. What is the first action recommended during a sudden tyre blowout ?
- (a) Apply the handbrake immediately
 - (b) Hold the steering wheel tightly
 - (c) Turn off the engine
 - (d) None of the above



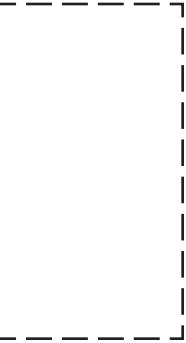
39. What is the immediate action when the accelerator sticks ?
- (a) Turn off lights
 - (b) Shift to neutral immediately
 - (c) Accelerate harder
 - (d) Switch to high beam
40. If the accelerator sticks, where should your eyes remain ?
- (a) On the speedometer
 - (b) On the accelerator pedal
 - (c) On the mirrors
 - (d) On the road
41. If all headlight switch attempts fail, which lights should be tried ?
- (a) Brake lights
 - (b) Number plate light
 - (c) Parking lights, emergency flashers or turn signals
 - (d) Reverse lights
42. Where are 'Steep Ascent' signs most commonly found ?
- (a) Urban intersections
 - (b) Flat rural roads
 - (c) Highways with toll booths
 - (d) Hilly roads
43. What does a flashing red light indicate ?
- (a) Stop completely and proceed cautiously after making a safety check on all approaching traffic
 - (b) Speed up to clear the intersection on the road
 - (c) Only pedestrians must stop on flashing red light
 - (d) Proceed without stopping the vehicle
44. What does the Y-intersection road sign indicate ?
- (a) Helps reduce vehicle speed
 - (b) Helps driver in managing the intersection carefully
 - (c) Indicates presence of pedestrians
 - (d) Warns about road construction
45. What is the recommended action to be taken when driving safely at night ?
- (a) Speed up to pass through quickly
 - (b) Stop on the roadside
 - (c) Drive slowly
 - (d) None of the above



46. Why is night driving considered more dangerous than daytime driving ?
- (a) Roads are more crowded (b) Drivers are more alert
(c) Poor visibility (d) Vehicles move faster
47. Under what condition is towing by a vehicle other than a crane considered a traffic offence ?
- (a) If the vehicle being towed has its hazard lights on
(b) If the vehicle being towed has no driver at the steering
(c) If the towing is done during daytime
(d) If the towing is done on a highway
48. What signage must be displayed on the rear of a vehicle being towed ?
- (a) "TOWING IN PROGRESS" (b) "ON TOW"
(c) "VEHICLE UNDER REPAIR" (d) "SLOW VEHICLE"
49. Following traffic sign indicates



- (a) Cross-road
(b) Pedestrian crossing
(c) Railway crossing
(d) Narrow bridge
50. Which sign is used to indicate the end of all prohibitions for vehicle movement ?
- (a) Restriction End Sign
(b) Stop Sign
(c) Compulsory Ahead
(d) Main Road Ahead
-





Series

A

CODE : IEM – 25(D)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component

Paper – 4 : ECG Technician

No. of Questions

1-50

Page No.

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 4 : ECG Technician

1. Cell membrane is composed of _____ types of substances.
(a) Proteins (b) Lipids
(c) Carbohydrates (d) All of the above
2. _____ is a network of tubular and microsomal vesicular structures which are interconnected with one another.
(a) Endoplasmic reticulum (b) Golgi apparatus
(c) Mitochondria (d) Ribosomes
3. Production of energy, synthesis of ATP (Adenosine Triphosphate) and initiation of apoptosis is the function of
(a) Centrosome (b) Mitochondria
(c) Ribosomes (d) None of the above
4. Normal sulfhemoglobin level is _____ of total hemoglobin.
(a) More than 1% (b) 2%
(c) Less than 1% (d) None of the above
5. _____ are also known as polymorphs have fine or small granules in the cytoplasm.
(a) Neutrophils (b) Eosinophils (c) Basophils (d) Monocytes
6. As in case of gastric secretion, _____ is regulated by nervous mechanism through reflex action.
(a) Gastric phase (b) Intestinal phase
(c) Cephalic phase (d) None of the above
7. Function of liver includes
(a) Metabolic function (b) Storage function
(c) Synthetic function (d) All of the above
8. Transports cholesterol and phospholipids from liver to tissues and organs like heart, is the function of
(a) High-Density Lipoprotein (HDL)
(b) Intermediate-Density Lipoprotein (IDL)
(c) Low-Density Lipoprotein (LDL)
(d) None of the above



9. _____ is the back of trunk.
(a) Ventral (b) Medial (c) Dorsal (d) Proximal
10. _____ is paralysis of all the four limbs.
(a) Quadriplegia (b) Hypoplasia (c) Hemiplegia (d) Paraplegia
11. _____ is the elongated shaft of a long bone which ossifies from a primary centre.
(a) Metaphysis (b) Epiphysis
(c) Diaphysis (d) None of the above
12. Examples of Hinge Joints is
(a) Elbow joint (b) Ankle joint
(c) Interphalangeal joints (d) All of the above
13. _____ is the swelling or dilation of blood vessels where part of the wall of artery inflates like a balloon.
(a) Buerger's disease (b) Raynaud's phenomenon
(c) Aneurysm (d) Arteriosclerosis
14. _____ is the visceral component of the peripheral nervous system, which includes the visceral or splanchnic nerves that are connected to the CNS through the somatic nerves.
(a) Peripheral autonomic nervous system
(b) Cerebrospinal nervous system
(c) Central nervous system
(d) None of the above
15. _____ found in the parenchyma of brain and spinalcord.
(a) Ependymal cells (b) Schwann cells
(c) Capsular or satellite cells (d) Neuroglial cells
16. _____, producing an oily secretion, are widely distributed all over the dermis of the skin, except for the palms and soles.
(a) Sudoriferous glands (b) Sweat glands
(c) Sebaceous glands (d) Eccrine glands



17. _____ is a fibrous sheet which invests the body beneath the superficial fascia.
- (a) Deep fascia (b) Superficial fascia
(c) Intermediate fascia (d) None of the above
18. _____ are a group of hereditary hemolytic disorders characterized by impairment/imbalance in the synthesis of globin chains of Hb.
- (a) Sick cell anemia (b) Thalassemias
(c) Hemoglobin C disease (d) None of the above
19. _____ condition is associated with increased hemolysis of erythrocytes.
- (a) Hemolytic jaundice (b) Hepatic jaundice
(c) Obstructive jaundice (d) None of the above
20. Gilbert's disease is not a single disease, but a combination of disorders of
- (a) A defect in the uptake of bilirubin by liver cells.
(b) An impairment in conjugation due to reduced activity of UDP-glucuronyl transferase.
(c) Decreased hepatic clearance of bilirubin.
(d) All of the above
21. _____ represents a change in the randomness or disorder of reactants and products.
- (a) Enthalpy (b) Activation energy
(c) Free energy (d) Entropy
22. The synthesis of glucose from non-carbohydrate compounds is known as
- (a) Glycolysis (b) Glycogenesis
(c) Gluconeogenesis (d) Glycogenolysis
23. The prime function of liver glycogen is _____ particularly between meals.
- (a) To provide energy for muscle contraction
(b) To maintain the blood glucose levels
(c) To synthesize amino acids
(d) To store lipids



24. The metabolic defects concerned with the glycogen synthesis and degradation are collectively referred to as
- (a) Lipidoses
 - (b) Mucopolysaccharidoses
 - (c) Amino acidopathies
 - (d) Glycogen storage diseases
25. The synthesis of glycogen from glucose is
- (a) Glycolysis
 - (b) Gluconeogenesis
 - (c) Glycogenolysis
 - (d) Glycogenesis
26. _____ is the most important metabolic pathway for the energy supply to the body.
- (a) Glycolysis
 - (b) Citric acid cycle
 - (c) Hexose monophosphate shunt
 - (d) Glycogenesis
27. Galactosemia is due to the deficiency of the enzyme
- (a) Lactase
 - (b) Galactokinase
 - (c) Galactose 1-phosphate uridyltransferase
 - (d) Hexokinase
28. An excellent method for safely destroying materials such as contaminated cloth, animal carcasses and pathological materials is
- (a) Autoclaving
 - (b) Incineration
 - (c) Chemical disinfection
 - (d) Pasteurization
29. _____ filters are routinely used in water purification and analysis, sterilization and sterility testing and for the preparation of solutions for parenteral use.
- (a) Membrane
 - (b) Asbestos
 - (c) Sintered glass
 - (d) Autoclave
30. _____ is referred as cold sterilization.
- (a) Ionising radiation
 - (b) Non-ionizing radiation
 - (c) Autoclave
 - (d) Hot air oven



31. _____ is a colorless liquid with a boiling point of 10.7°C and at normal temperature and pressure is a highly penetrating gas.
- (a) Formalene (b) Butane
(c) Beta propiolactone (d) Ethylene oxide
32. Cerebrospinal fluid is obtained by
- (a) Venipuncture (b) Lumbar puncture
(c) Arterial puncture (d) Thoracentesis
33. _____ is in the peritoneal cavity of the abdomen and pelvis.
- (a) Pleural fluid (b) Synovial fluid
(c) Pericardial fluid (d) Peritoneal fluid
34. Specific gravity <1.018 indicates that the fluid is
- (a) Exudate (b) Transudate
(c) Plasma (d) None of the above
35. _____ is found around the joints such as knee, ankle, hip, elbow, wrist and shoulder.
- (a) Pleural fluid (b) Synovial fluid
(c) Pericardial fluid (d) Peritoneal fluid
36. The signal for heartbeat initiation starts in the
- (a) Atrioventricular (AV) node (b) Bundle of His
(c) Purkinje fibers (d) Sinoatrial (SA) node
37. The first positive deflection in the QRS complex is called as
- (a) R wave (b) Q wave
(c) S wave (d) T wave
38. The spread of electrical stimuli through the Atrioventricular (AV) junction occurs between the beginning of the P wave and the beginning of the QRS complex. This interval is known as
- (a) PR interval (b) QT interval
(c) ST segment (d) RR interval



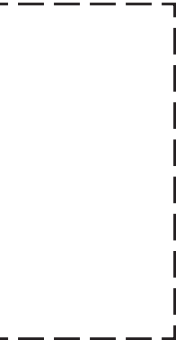
39. ECG graph paper usually moves at a speed of
(a) 10 mm/sec (b) 20 mm/sec
(c) 25 mm/sec (d) 50 mm/sec
40. A deflection that is partly positive and partly negative on an ECG is called a
(a) Monophasic wave (b) Biphasic wave
(c) Triphasic wave (d) Isoelectric line
41. A heart rate exceeding 100 beats/min is termed as
(a) Tachycardia (b) Bradycardia
(c) Apnea (d) Dyspnea
42. In a standard ECG (Electrocardiogram), how many limb leads and chest (precordial) leads are recorded ?
(a) 3 limb leads and 3 chest leads
(b) 6 limb leads and 6 chest leads
(c) 4 limb leads and 6 chest leads
(d) None of the above
43. A negative deflection following the R wave is called as
(a) Q wave (b) R wave
(c) S wave (d) T wave
44. A heart rate slower than 60 beats/min is called a
(a) Tachycardia (b) Bradycardia
(c) Apnea (d) Dyspnea
45. An even higher grade of ischemia leads to depression of the ST segment and is called
(a) Transmural lesion
(b) Subepicardial lesion
(c) Subendocardial lesion
(d) Myocardial necrosis



46. _____ is a small, rounded deflection sometimes seen after the T wave.
- (a) U wave
 - (b) S wave
 - (c) T wave
 - (d) R wave
47. The ECG in severe hypokalemia is characterized by a fusion of the T wave with a prominent
- (a) Q wave
 - (b) U wave
 - (c) R wave
 - (d) S wave
48. In moderate to severe _____, the ECG is characterized by a shortened QT interval, always at the expense of the ST segment that is shortened or even absent.
- (a) Hypercalcemia
 - (b) Hypocalcemia
 - (c) Hyperkalemia
 - (d) Hypokalemia
49. Abnormally tall and symmetroid _____ waves are seen in moderate hyperkalemia.
- (a) P
 - (b) Q
 - (c) R
 - (d) T
50. Patients with severe chronic obstructive lung disease due to emphysema often show which of the following characteristic ECG findings ?
- (a) High QRS voltage, left axis deviation and left atrial enlargement
 - (b) Low QRS voltage, slow R wave progression, vertical or rightward QRS axis and right atrial overload
 - (c) ST segment elevation in all chest leads
 - (d) Tall R waves in leads V5–V6 and left ventricular hypertrophy
-



IEM – 25(D)





Series

A

CODE : IEM – 25(E)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component

Paper – 5 : EEG Technician

No. of Questions

1-50

Page No.

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method ☐ ☒ ☐ ☐	Wrong Method ☐ ☒ ☐ ☐	Wrong Method ☐ ☒ ☐ ☐	Correct Method ☐ ☒ ☐ ☐
--	--	--	--

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 5 : EEG Technician

1. Which of the following best describes the process of interpreting a neonatal EEG ?
 - (a) It consists of related phases of analysis that are mostly conducted in parallel
 - (b) It consists of unrelated steps done in sequence
 - (c) It involves random sampling of EEG waves
 - (d) It focuses only on abnormal findings
2. In neonatal EEG interpretation, the EEG-determined age of the infant is typically expressed in terms of which measurement ?
 - (a) Legal age
 - (b) Gestational age (GA)
 - (c) Conceptional age (CA)
 - (d) Postnatal maturity index
3. In addition to standard EEG recording guidelines, what recent advancement has been added for neonates ?
 - (a) A guideline on continuous EEG monitoring in neonates
 - (b) A guideline for EEG use during surgery
 - (c) A protocol for EEG in premature adults
 - (d) A new electrode placement system
4. The International 10-20 System of Electrode Placement has been modified for which group of patients ?
 - (a) Adults with epilepsy
 - (b) Neonates
 - (c) Elderly patients
 - (d) Adolescents
5. According to American Clinical Neurophysiology Society (ACNS) guidelines, which electrodes comprise the minimum reduced array for neonatal EEG ?
 - (a) Fp1, Fp2, F7, F8, P3, P4, O1, O2, A1, A2
 - (b) Fp1, Fp2, C3, C4, CZ, T7 (T3), T8 (T4), O1, O2, A1, and A2
 - (c) Fp1, F3, Fp2, F4, C3, C4, P3, P4, OZ
 - (d) None of the above
6. What impedance range is acceptable for neonatal EEG electrode recordings ?
 - (a) Less than 2 kOhms
 - (b) 1 and 3 kOhms
 - (c) 5 to 10 kOhms
 - (d) Greater than 15 kOhms
7. What does the recording of the neonatal EEG include ?
 - (a) The documentation of wake/sleep cycles, reactivity to stimulation and identification of age-dependent waveforms and other features
 - (b) Only the assessment of muscle tone
 - (c) Only the measurement of brainstem activity
 - (d) The analysis of heart rate variability alone



8. From which brain regions do temporal theta bursts typically occur ?
(a) Frontal and occipital areas (b) Left and right midtemporal areas
(c) Parietal and central regions (d) Occipital poles only
9. What type of response is observed during intermittent photic stimulation in EEG ?
(a) Occipital driving response (b) Frontal beta response
(c) Temporal alpha response (d) Central delta response
10. What effect does oscillation of a grating pattern have on EEG activity ?
(a) It greatly enhances provocation of paroxysmal discharges
(b) It reduces occipital activity
(c) It eliminates photic responses
(d) None of the above
11. What is the optimal oscillation frequency range for provoking paroxysmal discharges ?
(a) 25 – 30 Hz (b) 10 – 15 Hz
(c) 15 – 20 Hz (d) None of the above
12. How are variant rhythms generally described ?
(a) Monomorphic (b) Asynchronous
(c) Irregular (d) None of the above
13. What is an important characteristic of most variant rhythms ?
(a) They always shift in frequency
(b) They do not evolve
(c) They show constant amplitude fluctuation
(d) None of the above
14. What does the abbreviation RMTD stand for in EEG terminology ?
(a) Rhythmic Midtemporal Theta Bursts of Drowsiness
(b) Random Midtemporal Theta Discharges
(c) Repetitive Motor Theta Discharges
(d) Resting Midtemporal Theta Drift
15. What is the typical frequency range of RMTD activity ?
(a) 5 – 7 Hz (b) 3 – 4 Hz (c) 8 – 10 Hz (d) 10 – 12 Hz
16. In which condition is midline theta rhythm seen more frequently ?
(a) Temporal lobe epilepsy (3.7%) (b) Parietal lobe epilepsy (25%)
(c) Occipital lobe epilepsy (10%) (d) Frontal lobe epilepsy (48.1%)



17. Which of the following is another name for Benign Sporadic Sleep Spikes (BSSS) ?
 - (a) Benign epileptiform transients of sleep
 - (b) Sleep spindles
 - (c) Rhythmic temporal spikes
 - (d) Hypnagogic discharges
18. Where are the primary motor neurons (anterior horn cells) located ?
 - (a) In the dorsal gray matter of the spinal cord
 - (b) In the dorsal root ganglia
 - (c) In the brainstem
 - (d) In the ventral gray matter of the spinal cord
19. Where is the dorsal root ganglion located ?
 - (a) Inside the spinal cord
 - (b) In the brainstem
 - (c) Outside the spinal cord near the intervertebral foramen
 - (d) Within the gray matter of the spinal cord
20. What is the primary role of a nerve in the nervous system ?
 - (a) To transmit information reliably between the anterior horn cells and muscles and between sensory receptors and the spinal cord
 - (b) To generate electrical impulses in muscles
 - (c) To store information temporarily in the spinal cord
 - (d) To regulate chemical neurotransmitter production only
21. Which of the following is not one of the attributes used to classify peripheral nerves ?
 - (a) Myelinated or unmyelinated
 - (b) Somatic or autonomic
 - (c) Motor or sensory
 - (d) Length of the nerve
22. What does peak latency represent in a nerve conduction study ?
 - (a) The time from the stimulus to the midpoint of the first negative peak
 - (b) The time from the end of the stimulus to the end of the response
 - (c) The duration between two consecutive action potentials
 - (d) The total time taken for muscle contraction
23. In myopathic disorders, which fibers are affected in a superimposed neuropathic condition that alters sensory conduction ?
 - (a) Sensory fibers
 - (b) Motor fibers only
 - (c) Autonomic fibers only
 - (d) None of the above



24. Which of the following is a presynaptic neuromuscular junction disorder ?
(a) Myasthenia gravis
(b) Duchenne muscular dystrophy
(c) Lambert-Eaton myasthenic syndrome
(d) Polymyositis
25. What factors does the F estimate take into account while determining whether a prolonged F response is abnormal ?
(a) Only conduction velocity and temperature
(b) Distal motor latency, conduction velocity and limb length
(c) Amplitude and duration of Compound Muscle Action Potential (CMAP)
(d) Reflex latency and muscle size
26. How does the H response differ from the F response ?
(a) The H response is an artificial response without a reflex arc
(b) The H response is generated only by direct muscle stimulation
(c) The H response travels only through motor fibers without synaptic transmission
(d) The H response is a true reflex involving a sensory afferent, a synapse and a motor efferent segment
27. The axon reflex typically occur
(a) After the F response only during sleep
(b) Between the F response and the direct M response
(c) After the H response
(d) None of the above
28. In which condition are axon reflexes often seen during the first several days of illness ?
(a) Myasthenia gravis
(b) Guillain-Barré syndrome
(c) Multiple sclerosis
(d) None of the above
29. What is the speculated cause of axon reflexes in Guillain-Barré syndrome ?
(a) Increased synaptic transmission
(b) Excessive neurotransmitter release at the NMJ
(c) Direct stimulation of the muscle spindle
(d) Ephaptic spread from one nerve fiber to another at a point of inflammation and demyelination
30. What is the chemical neurotransmitter at the Neuromuscular Junction (NMJ) ?
(a) Dopamine
(b) Serotonin
(c) GABA
(d) Acetylcholine (ACH)



31. What type of link does the Neuromuscular Junction (NMJ) form between nerve and muscle ?
 - (a) Chemical – electrical – chemical
 - (b) Mechanical – chemical
 - (c) Electrical – chemical – electrical
 - (d) Electrical – mechanical
32. In the physiologic model of RNS, the variable m represents
 - (a) The number of postsynaptic receptors
 - (b) The number of quanta released during each stimulation
 - (c) The size of the reserve store
 - (d) None of the above
33. The normal amplitude for the median nerve motor study recorded over the Abductor Pollicis Brevis (APB) is
 - (a) ≥ 2.0 mV
 - (b) ≥ 4.0 mV
 - (c) ≥ 6.0 mV
 - (d) ≥ 7.0 mV
34. Where is the ground electrode applied during a needle EMG study ?
 - (a) On the patient's chest
 - (b) On the EMG machine casing
 - (c) On the opposite limb
 - (d) On the limb being studied
35. Both concentric and monopolar needles are effective for
 - (a) Recording only sensory nerve signals
 - (b) Stimulating peripheral nerves
 - (c) Measuring muscle temperature
 - (d) Recording electrical signals from muscle
36. After nerve conduction studies are completed, the next step in the electrodiagnostic evaluation is
 - (a) EEG recording
 - (b) Repetitive stimulation
 - (c) Needle electromyography
 - (d) Imaging studies
37. Before inserting the EMG needle, the electromyographer must
 - (a) Ask the patient to contract the muscle forcefully
 - (b) Apply electrical stimulation
 - (c) Locate the muscle using anatomic landmarks
 - (d) Connect the ground electrode
38. Disorders affecting the Neuromuscular Junction (NMJ) are generally
 - (a) Pure sensory syndromes
 - (b) Pure motor syndromes
 - (c) Mixed sensory-motor syndromes
 - (d) Autonomic-only disorders



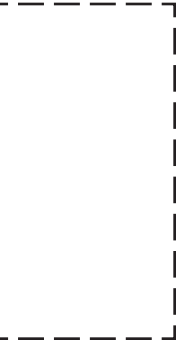
39. Myasthenia Gravis (MG) is primarily caused by an autoimmune attack directed at
- (a) Muscarinic acetylcholine receptors
 - (b) Dopamine receptors
 - (c) Nicotinic acetylcholine receptors
 - (d) GABA receptors
40. Which of the following disorders can also show a decremental CMAP response on Repetitive Nerve Stimulation (RNS) ?
- (a) Parkinson disease
 - (b) Radiculopathy alone
 - (c) Migraine disorders
 - (d) Motor neuron disease and myotonic disorders
41. The needle EMG examination is important primarily because it helps
- (a) Confirm the presence of sensory neuropathy
 - (b) Differentiate Neuromuscular Junction (NMJ) disorders from denervating and myotonic disorders
 - (c) Replace repetitive nerve stimulation testing
 - (d) Evaluate cardiac conduction
42. Repetitive Nerve Stimulation (RNS) studies are abnormal in what percentage of patients with generalized Myasthenia Gravis (MG) ?
- (a) 5 – 10%
 - (b) Less than 20 – 30%
 - (c) More than 50 – 70%
 - (d) 90 – 100%
43. What does a decremental response on Repetitive Nerve Stimulation (RNS) represent clinically ?
- (a) Increased motor unit recruitment
 - (b) Hyperexcitability of the muscle
 - (c) Muscle fatigue and weakness
 - (d) Enhanced neuromuscular transmission
44. Lambert-Eaton Myasthenic Syndrome (LEMS) is primarily a disorder of
- (a) Postsynaptic acetylcholine receptors
 - (b) Sensory nerve terminals
 - (c) Muscle fiber membrane channels
 - (d) Reduced release of ACH from the presynaptic terminal



45. Differentiation between myopathic and neuropathic disorders is primarily based on analysis of
- (a) Sensory nerve conduction velocities
 - (b) Motor Unit Action Potential (MUAP) parameters
 - (c) F-wave persistence
 - (d) H-reflex amplitude
46. Which parameter is not commonly evaluated in Motor Unit Action Potential Analysis ?
- (a) Amplitude
 - (b) Duration
 - (c) Recruitment pattern
 - (d) Serum creatine kinase level
47. In neuromuscular ultrasound, normal muscle fibers typically appear
- (a) Hyperechoic
 - (b) Isoechoic
 - (c) Hypoechoic
 - (d) Anechoic
48. Which EMG finding is characteristic of a Myopathic Motor Unit Action Potential (MUAP) ?
- (a) Long-duration, high-amplitude MUAPs with reduced recruitment
 - (b) Brief-duration, low-amplitude, polyphasic MUAPs with early recruitment
 - (c) Normal-duration MUAPs with late recruitment
 - (d) Large-amplitude MUAPs with decreased polyphasia
49. The prominent fibrillation potentials, yield additional important diagnostic information suggesting an
- (a) Steroid myopathy
 - (b) Lambert-Eaton Myasthenic Syndrome (LEMS)
 - (c) Myasthenia gravis
 - (d) Inflammatory or necrotic muscle disease
50. Steroid myopathy most commonly affects which muscle group ?
- (a) Distal hand muscles
 - (b) Facial muscles
 - (c) Hip girdle (proximal) muscles
 - (d) Paraspinal muscles
-



IEM – 25(E)





Series

A

CODE : IEM – 25(F)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component

Paper – 6 : Field Publicity Assistant

No. of Questions

1-50

Page No.

5-11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 6 : Field Publicity Assistant

1. The polarity of voltage drop across a resistor is determined by
 - (a) Direction of current flow in resistor
 - (b) The value of current
 - (c) The value of resistor
 - (d) The polarity of source

2. What defect is most likely to result in a “cold solder joint” ?
 - (a) Using rosin-core solder
 - (b) Insufficient heating of the metal surfaces to be joined
 - (c) Using too much flux
 - (d) Applying excess solder directly to the iron tip

3. When a neutral body loses some of its electrons, it
 - (a) Becomes positively charged due to electron deficit
 - (b) Becomes negatively charged due to loss of mass
 - (c) Remains electrically neutral
 - (d) Gains energy but remains uncharged

4. What type of motion do electrons exhibit in a conductor due to thermal effects ?

(a) Random motion	(b) Linear motion
(c) Circular motion	(d) Oscillatory motion

5. Which electrical conductor joint is primarily used to maximize the tensile strength of the conductor, often utilized in overhead lines ?

(a) Western Union Joint	(b) Pigtail Joint
(c) Single Cross Joint	(d) Twist Joint

6. The most common type of soft solder used for general electronic circuit board work is typically a mixture of

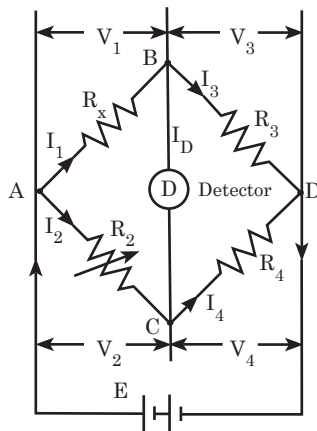
(a) Tin and Lead	(b) Gold and Nickel
(c) Copper and Silver	(d) None of the above



7. In the soldering process, the primary role of flux is to
 - (a) Increase the melting point of the solder
 - (b) Clean the metal surfaces by removing oxides and preventing further oxidation
 - (c) Speed up the cooling process
 - (d) Provide mechanical reinforcement to the joint
8. The Pigtail joint is commonly used when making connections inside which wiring accessory ?
 - (a) Service entrance panel
 - (b) Electrical meter
 - (c) Junction box or switch box
 - (d) Long conduit run
9. The resistance of a wire is R ohms. It is stretched to double its length. The new resistance of the wire in ohms is
 - (a) $4R$
 - (b) $2R$
 - (c) $R/2$
 - (d) $R/4$
10. The current in an open circuit is
 - (a) normally very high because the resistance of an open circuit is 0 ohm
 - (b) usually high enough to blow the circuit fuse
 - (c) zero
 - (d) slightly below normal
11. According to Ohm's law, current flowing in a circuit is inversely proportional to
 - (a) Resistance
 - (b) Power
 - (c) Voltage
 - (d) All of the above
12. In the circuit, a 12 V battery is connected in series with two resistors of $3\ \Omega$ and $9\ \Omega$. What is the potential difference across the $9\ \Omega$ resistor ?
 - (a) 3 V
 - (b) 4 V
 - (c) 6 V
 - (d) 9 V
13. What maintains equilibrium in a p-n junction without external bias ?
 - (a) Continuous generation of carriers
 - (b) Zero recombination rate
 - (c) Balance between diffusion and drift currents
 - (d) Barrier potential becomes zero



14. What is the multiplier for the green band in the resistor colour code ?
(a) 10^2 (b) 10^3 (c) 10^5 (d) 10^6
15. According to Faraday's first law of electrolysis, the amount of substance deposited at an electrode is proportional to
(a) Voltage applied (b) Current passed
(c) Time for which current flows (d) Both (b) and (c)
16. Following figure shows a _____ circuit used to measure medium resistance.



- (a) Ohmmeter (b) Voltmeter
(c) Wheatstone bridge (d) Kelvin bridge
17. The practical voltage source has emf of E volts and internal resistance is r ohms. If it supplies a load current of I amperes, the terminal voltage is
(a) E (b) E/r (c) Ir (d) $E - Ir$
18. _____ measures the insulation resistance of a coil.
(a) Shunt type ohmmeter (b) Volt meter
(c) Megger (d) None of the above
19. In a voltage divider circuit consisting of two resistors R_1 and R_2 in series across a voltage V , the voltage across R_1 is
(a) $V(R_1 + R_2)$ (b) $V \cdot \frac{R_1}{R_1 + R_2}$ (c) $V \cdot \frac{R_1}{R_2}$ (d) $V \cdot \frac{R_2}{R_1}$



20. Magnetization current in a transformer produces _____ in transformer core.
(a) Eddy current (b) Flux
(c) Power (d) None of these
21. If the angle between the plane of flux and plane of relative motion is 0° , then the induced emf is
(a) Zero (b) Maximum (c) Infinite (d) None of these
22. Aluminium Borate is used as the dielectric medium in which of the following type of capacitors ?
(a) Ceramic capacitor (b) Mica capacitor
(c) Paper capacitor (d) Electrolytic capacitor
23. The opposition offered by a capacitor to the AC current is called
(a) Resistance (b) Inductive reactance
(c) Capacitance (d) Capacitive reactance
24. If the frequency (f) of an AC supply is doubled, the Capacitive Reactance (X_C) will
(a) Double (b) Remain the same
(c) Quadruple (d) Be halved
25. In the equation for alternating current, $i = I_m \sin(\omega t)$, the value represented by 'i' is the
(a) RMS value (b) Average value
(c) Instantaneous value (d) Peak value
26. An AC series circuit has a resistance R and total impedance Z. The Power Factor (PF) is defined as
(a) Z/R (b) Z/X (where X is net reactance)
(c) $\sin \phi$ (d) R/Z
27. What are the two types of transistor available in Bipolar Junction Transistors (BJTs) ?
(a) NPN and PNP (b) NMOS and PMOS
(c) JFET and MESFET (d) CMOS and VMOS



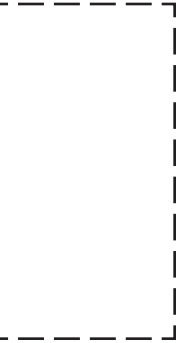
28. What is the peak factor for a sine wave ?
(a) 1.11 (b) 1.414 (c) 2 (d) 0.707
29. 3 similar impedances are connected in delta across a 3 phase supply. The two wattmeters connected to measure the input power indicate 12 kW and 7 kW. Power factor of the load is
(a) 0.9899 (b) 0.9099 (c) 0.9999 (d) 0.9393
30. In delta connected system, the relation between the line current I_L and phase current I_{ph} is
(a) $I_L = I_{ph}$ (b) $I_L = I_{ph} / \sqrt{3}$ (c) $I_L = \sqrt{3} I_{ph}$ (d) $I_L = 3 I_{ph}$
31. In a three phase system, the emfs are
(a) 30° apart (b) 60° apart (c) 90° apart (d) 120° apart
32. Which component causes the current to lag behind the voltage in an AC circuit ?
(a) Resistor (b) Capacitor
(c) Inductor (d) Transformer
33. The forward breakover voltage of an SCR
(a) decreases as the gate current increases
(b) cannot be controlled by gate current
(c) increases as the gate current increases
(d) none of the above
34. The ampere-hour efficiency of a lead acid cell is normally between
(a) 20-25% (b) 40-50% (c) 60-65% (d) 90-95%
35. The output Y of a 2-bit comparator is logic 1 whenever the 2-bit input A is greater than the 2-bit input B. The number of combinations for which the output is logic 1, is
(a) 4 (b) 6 (c) 8 (d) 10



36. Which of the following is used to protect electrical circuits from overload in electrical installations ?
(a) Miniature Circuit Breaker (MCB)
(b) Contactor
(c) Transformer
(d) None of the above
37. The PVC casing-capping wiring system is also referred to as
(a) Closed wiring
(b) Concealed wiring
(c) Open wiring
(d) Earthing wiring
38. Which switch is used to control a lamp from more than two locations ?
(a) One-way switch
(b) Intermediate switch
(c) Two-way switch
(d) Flush switch
39. Which modulation technique requires the largest channel bandwidth for high-fidelity audio transmission ?
(a) Amplitude Modulation (AM)
(b) Frequency Modulation (FM)
(c) Single Sideband (SSB)
(d) None of the above
40. What is the role of the capacitor in a rectifier filter circuit ?
(a) Blocks all current
(b) Allows only AC current
(c) Smooths pulsating DC output
(d) Increases the peak voltage
41. MOSFET stands for
(a) Metal Oxide Surface Field Effect Transistor
(b) Metal Oxide Semiconductor Field Effect Transistor
(c) Metal Oxidized Selenium Field Effect Transistor
(d) Metal Of Surface Field Effect Transistor
42. 3 terminals of IGBT are
(a) base, emitter and collector
(b) gate, source and drain
(c) base, source and drain
(d) gate, emitter and collector
43. _____ is a special type of power FET that has the function of a BJT with its base driven by FET.
(a) BJT
(b) IGBT
(c) FET
(d) None of these



44. What are the three widely used types of thyristors ?
(a) SCR, TRIAC, DIAC (b) BJT, FET, MOSFET
(c) CMOS, VMOS, JFET (d) NPN, PNP, Bipolar
45. Ground wave propagation is most effective for signals in which frequency range ?
(a) Very High Frequency (VHF)
(b) Super High Frequency (SHF)
(c) High Frequency (HF)
(d) Low Frequency (LF) and Medium Frequency (MF)
46. Which configuration is referred to as a complementary MOSFET arrangement in computer logic design ?
(a) VMOS (b) CMOS (c) DMOS (d) EMOS
47. An AM transmitter has a carrier voltage of 20 V and a modulating voltage of 15 V. What is the modulation index ?
(a) 1.33 (b) 0.5 (c) 0.75 (d) 1.0
48. The modulation index (μ) in Frequency Modulation (FM) is directly related to the
(a) Carrier amplitude (b) Wavelength
(c) Frequency deviation (d) Carrier frequency
49. What is the speed of propagation of a typical electromagnetic wave in a vacuum ?
(a) 3×10^5 m/s (b) 3×10^{10} m/s
(c) 3×10^7 m/s (d) 3×10^8 m/s
50. The phenomenon that allows radio waves in the High Frequency range to travel beyond the line of sight is the reflection of the waves by the
(a) Troposphere (b) Stratosphere
(c) Magnetosphere (d) Ionosphere





Series

A

CODE : IEM – 25(G)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component

Paper – 7 : Health Assistant

No. of Questions

1-50

Page No.

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 7 : Health Assistant

1. Which component of the disaster/trauma management cycle occurs immediately after a disaster impact ?
(a) Mitigation (b) Preparedness (c) Response (d) Reconstruction
2. Which of the following is part of the trauma system's immediate phase ?
(a) Search, rescue and first aid (b) Health legislation
(c) Surveillance (d) Reconstruction
3. In the triage approach system, Priority 1 group consists of
(a) Critically ill patients, who need immediate medical/surgical treatment within 6 hours
(b) Moderately ill (or moderately risk cases) requiring resuscitation within 24 hours
(c) Ambulatory patients of minimum risk cases
(d) Dead or moribund patients
4. _____ involves measures to lessen the likely effects of emergencies.
(a) Mitigation (b) Recovery
(c) Response (d) Preparedness
5. Which of the following is classified as a man-made disaster ?
(a) Tornado (b) Flood
(c) Collapse of the building (d) Tsunami
6. In disaster situations, where health manpower is limited, the method of classifying injured survivors based on severity of injuries and likelihood of survival with medical care is known as
(a) Resuscitation (b) Prioritization protocol
(c) Emergency sorting (d) Triage approach
7. The phase of disaster response that begins when assistance arrives from outside and focuses on preventing epidemics and providing essentials such as food, clothing, shelter and medicines is called
(a) Rescue phase (b) Rehabilitation phase
(c) Relief phase (d) Reconstruction phase



8. The phase in disaster management that focuses on strengthening a country's ability to efficiently handle emergencies so that resources can assist victims and restore normalcy is called
 - (a) Preparedness
 - (b) Mitigation
 - (c) Response
 - (d) Reconstruction
9. How many bones form the skeletal framework of each upper limb, including the arm, forearm and hand ?
 - (a) 30
 - (b) 24
 - (c) 20
 - (d) 46
10. At the distal end of the humerus, the spool-shaped structure on the medial side is the _____ and the lateral, ball-like structure identifiable with a "C" from the anterior view is the _____.
 - (a) Capitulum; Olecranon
 - (b) Trochlea; Capitulum
 - (c) Olecranon; Trochlea
 - (d) None of the above
11. Which two bones together form the skeletal structure of the forearm ?
 - (a) Radius and ulna
 - (b) Humerus and radius
 - (c) Humerus and ulna
 - (d) Carpals and radius
12. How many phalanges (finger bones) are present in each human hand ?
 - (a) 10
 - (b) 12
 - (c) 14
 - (d) 16
13. The kidney is protected by how many distinct layers ?
 - (a) One
 - (b) Two
 - (c) Three
 - (d) None of the above
14. Which of the following is the largest gland in the human body ?
 - (a) Liver
 - (b) Pancreas
 - (c) Thyroid gland
 - (d) Adrenal gland
15. The pelvic girdle is formed by which of the following bones ?
 - (a) Two femur bones and the sacrum
 - (b) Two coxal bones and the sacrum
 - (c) Two tibia bones and the coccyx
 - (d) Two radius bones and the sacrum
16. Muscles that act on the lower limb cause movement at the
 - (a) Hip joints
 - (b) Knee joints
 - (c) Foot joints
 - (d) All of the above



17. Veins that drain the lower limb
- (a) Axillary vein
 - (b) Basilic vein
 - (c) Median cubital vein
 - (d) Small saphenous vein
18. The composition of blood depends primarily on which of the following factors ?
- (a) Respiration, digestion and heart rate
 - (b) Diet, cellular metabolism and urine output
 - (c) Exercise, temperature and pulse rate
 - (d) Sleep, hydration and mood
19. Which of the following are components of extracellular fluid (ECF) ?
- (a) Cytoplasm, nucleoplasm and mitochondrial fluid
 - (b) Blood plasma, interstitial fluid and lymph
 - (c) Synovial fluid, cerebrospinal fluid and cytosol
 - (d) All of the above
20. Which part of the heart is known as the natural pacemaker ?
- (a) Atrioventricular (AV) node
 - (b) Bundle of His
 - (c) Purkinje fibers
 - (d) Sinoatrial (SA) node
21. What does the term diastole refer to in the cardiac cycle ?
- (a) Contraction of the heart
 - (b) Relaxation of the heart
 - (c) Deoxygenation
 - (d) Pumping of blood into the arteries
22. What does the term cardiac cycle refer to ?
- (a) The flow of blood through the lungs
 - (b) The contraction of the ventricles only
 - (c) The regulation of heart rate by the brain
 - (d) The events of one complete heartbeat
23. Hemostasis involves _____ phases.
- (a) vascular spasms
 - (b) platelet plug formation
 - (c) coagulation
 - (d) all of the above



24. What does cardiac output (CO) refer to ?
(a) The volume of blood ejected by both atria in one heartbeat
(b) The pressure exerted by blood on arterial walls
(c) The amount of blood pumped out by each ventricle in one minute
(d) The total volume of blood in the circulatory system
25. The volume of blood pumped out by a ventricle with each heartbeat is called
(a) Stroke volume (b) End-diastolic volume
(c) Cardiac output (d) Systolic pressure
26. The pain sensation can be influenced or modified by
(a) Elimination of the cause of pain
(b) Stimulation of nociceptors
(c) Increasing prostaglandin synthesis
(d) None of the above
27. Which drugs suppress the transmission of nociceptive impulses in the spinal medulla ?
(a) Antipyretics (b) Antihistamines (c) β -agonists (d) Opioids
28. An injectable solution must be free of
(a) Infectious agents (b) Pyrogens
(c) Suspended matter (d) All of the above
29. Mucosal application of drug via the rectal or vaginal route is achieved by means of
(a) Syrups and elixirs (b) Suppositories and vaginal tablets
(c) Aerosols and inhalers (d) Capsules and troches
30. Which of the following is the most common mode of HIV infection ?
(a) Transmission through saliva droplets
(b) Sexual transmission at the genital mucosa through direct contact with infected body fluids
(c) Transmission through airborne particles
(d) Transmission through sharing utensils



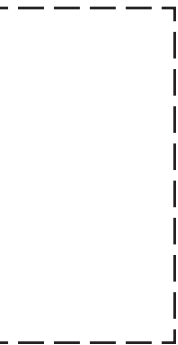
31. Low-level disinfectants kill
- (a) All microorganisms including spores
 - (b) Lipid-enveloped viruses and most vegetative bacteria
 - (c) Only fungi
 - (d) Only mycobacteria
32. Which of the following best describes the basis of early bacterial classification systems ?
- (a) Genetic sequencing and molecular phylogeny
 - (b) Immunological reactions and host range
 - (c) Morphological and biochemical criteria
 - (d) None of the above
33. rRNA is the best single target for studying phylogenetic relationships because
- (a) it is present in all bacteria
 - (b) it is functionally constant
 - (c) it is composed of highly conserved
 - (d) all of the above
34. Which term refers to the application of analytical methods to gather information on the chemical constituents of a bacterial cell for classification purposes ?
- (a) Chemotaxonomy
 - (b) Serotyping
 - (c) Genomics
 - (d) Morphotyping
35. Colloidal solutions are best described as
- (a) Fluids containing small electrolytes that freely cross the capillary membrane
 - (b) Fluids that rapidly equilibrate across all body compartments
 - (c) Fluids containing large molecules that exert an oncotic pressure at the capillary membrane
 - (d) Fluids used only for electrolyte replacement
36. What is the recommended action if cardiac arrest occurs during suspected anaphylaxis under anaesthesia ?
- (a) Begin chest compressions only and reassess after 2 minutes
 - (b) Start CPR immediately following ALS guidelines
 - (c) Administer adrenaline first and delay CPR
 - (d) Check blood pressure before initiating CPR



37. Which organ in the female reproductive system nourishes, protects and ultimately expels the fetus ?
(a) Ovary (b) Fallopian tube (c) Cervix (d) Uterus
38. Which structure of the uterus is supplied by the spiral and basal arterioles ?
(a) Myometrium (b) Perimetrium (c) Endometrium (d) Cervix
39. What is the term for menstrual blood accumulating in the uterus due to outflow obstruction ?
(a) Haematometra (b) Hematosalpinx
(c) Haematocolpos (d) Pelvic hematoma
40. In gynecological surgery, the abbreviation TAH refers to which procedure ?
(a) Total Anterior Hemisection (b) Trans Abdominal Herniorrhaphy
(c) Total Abdominal Hysterectomy (d) Tubo-Abdominal Hemostasis
41. Which hormone is responsible for the development of secondary sexual characteristics ?
(a) Progesterone (b) Luteinizing hormone
(c) Follicle-stimulating hormone (d) Oestrogen
42. In respiratory care, the abbreviation NIV refers to which type of ventilatory support ?
(a) Negative Internal Ventilation (b) Nasal Inspiratory Valve
(c) Non-Invasive Ventilation (d) Neuro-Intermittent Ventilation
43. Which clinical syndrome is characterized by inadequate tissue perfusion and oxygenation to maintain normal metabolic function of cells and organs ?
(a) Hypoxia (b) Shock
(c) Sepsis (d) Respiratory failure
44. The early post-burn period (within the first 8 hours) is characterized by rapid formation of tissue oedema occurring predominantly
(a) Only in non-burned tissue
(b) In the wound itself and also in non-burned tissue
(c) Only in the bloodstream
(d) Only in deeper muscle layers



45. What term describes bruising of the brain substance associated with head trauma ?
(a) Cerebral edema (b) Concussion
(c) Intracranial hematoma (d) Cerebral contusion
46. What term describes a soft tissue injury with loss of bone continuity ?
(a) Sprain (b) Twist (c) Fracture (d) Contusion
47. Which grade of open fracture is defined as having a laceration greater than 1 cm long without extensive soft tissue damage, flaps or avulsions ?
(a) Grade I (b) Grade II (c) Grade III A (d) Grade III B
48. In trauma care, the abbreviation OCS stands for
(a) Ocular Corneal Swelling (b) Optic Canal Stenosis
(c) Orbital Compartment Syndrome (d) Orbital Compression System
49. In trauma evaluation, FAST stands for which of the following ?
(a) Focused Abdominal Scan Test
(b) Functional Assessment Sonography Technique
(c) Full Anatomical Sonographic Test
(d) Focused Assessment Sonography in Trauma
50. Non-Invasive Blood Pressure (NIBP) measurements using a sphygmomanometer and palpation were first proposed in which period ?
(a) Early 1600s (b) Late 1800s
(c) Mid-1700s (d) Early 2000s
-





Series

A

CODE : IEM – 25(H)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
2. The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
3. Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
4. Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
5. You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
6. All questions are compulsory and each Question carries 2 marks.
7. **There is no negative marking for incorrect answers.**
8. This Booklet contains 50 questions.

Test Component

Paper – 8 : Library and Information Science

No. of Questions

1-50

Page No.

5 – 11

9. Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
10. Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
11. **No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
12. This booklet contains 12 pages.
13. **Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
14. Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

15. There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
16. Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
17. **You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 8 : Library and Information Science

1. Ordinal number which fixes the position of a document in a library relative to the other documents having the same ultimate class is
 - (a) Book Number
 - (b) Class Number
 - (c) Collection Number
 - (d) None of the above
2. As an alternative to physical storage, _____ storage becomes one answer to the question of where the archiving and preservation on the scholarly tradition should occur.
 - (a) Stockroom
 - (b) Electronic
 - (c) Storeroom
 - (d) Warehouse
3. What does IFLA stand for ?
 - (a) International Federation of Library Association
 - (b) Indian Federation of Library Association
 - (c) Indian Federation of Legislative Association
 - (d) International Founders of Library Legislative Association
4. _____ came into existence in 1955.
 - (a) Association of Special Libraries and Information Bureaux (ASLIB)
 - (b) Special Library Association (SLA)
 - (c) Indian Association of Special Libraries and Information Centres (IASLIC)
 - (d) None of the above
5. One of the principal objectives of the _____ is to enunciate national library policy and to work towards its adoption by the Central and State Governments.
 - (a) American Library Association (ALA)
 - (b) Indian Library Association (ILA)
 - (c) Raja Rammohun Roy Library Foundation (RRRLF)
 - (d) Information and Library Network Centre (INFLIBNET)
6. _____ is the ultimate purpose of our intellect and the scientific enterprise and therefore of central concern to information discipline.
 - (a) Wisdom
 - (b) Intelligence
 - (c) Behaviour
 - (d) None of the above



7. Information becomes _____ when it is given meaning, usually by a human mind.
(a) Knowledge (b) Resource
(c) Intelligence (d) None of the above
8. _____ is a trinity of acquisition, organization and dissemination, which implies a body of material and a corpus of skills for its manipulation, to the end of serving the culture.
(a) Chief Operating Officer (b) Manager
(c) Technical Officer (d) Librarianship
9. Library managers must provide for adequate staff _____ in the new skill required to work in an automated environment.
(a) Manual (b) Training
(c) Seminar (d) None of the above
10. _____ is a catalogue in which all the entries are “word entries”.
(a) Subject Catalogue (b) Title Catalogue
(c) Classified Catalogue (d) Dictionary Catalogue
11. _____ is a process, which brings together like documents and separate unlike ones.
(a) Cataloguing (b) Classification
(c) Library automation (d) Collection development
12. _____ scheme of classification consists essentially of a single schedule enumerating all subjects of the past, the present and the anticipated future.
(a) Enumerative (b) Freely faceted
(c) Almost faceted (d) None of the above
13. _____ species of scheme have been developed for the classification of subjects.
(a) Four (b) Seven
(c) Six (d) None of the above
14. In the Colon Classification, the facets of any class are related to the five fundamental categories which Ranganathan calls Personality, Matter, _____, Space and Time.
(a) Energy (b) Phase (c) Capacity (d) Nature



15. Identification of the fundamental category “_____” presents the greatest difficulty.
(a) Personality (b) Matter (c) Energy (d) Space
16. The enumeration device (idea plane) is a device for forming the classes or the isolates in a facet or the array-isolates in an array by directly _____ them.
(a) Enumerating (b) Organising
(c) Classifying (d) None of the above
17. Colon Classification is the work of the great Indian Librarian S. R. Ranganathan, and was first published in
(a) 1922 (b) 1955 (c) 1944 (d) 1933
18. The extent of the use of library resources depends greatly upon the quality of a
(a) Library physical books (b) Shelf list
(c) Library catalogue (d) Library staff
19. _____ is a catalogue in which subject entries are arranged according to some classification scheme.
(a) Alphabetical Catalogue (b) Classified Catalogue
(c) Alphabetico-Classed Catalogue (d) All of the above
20. The person chiefly responsible for the creation of the intellectual or artistic content of a work
(a) Personal author (b) Editor
(c) Collaborator (d) Corporate body
21. A _____ is a name assumed by an author to conceal or obscure his or her identity.
(a) Personal name (b) Corporate name
(c) Anonymous name (d) Pseudonym
22. The structure of western names usually conforms to a standard pattern. The personal name consists of a given name followed by a
(a) Religious name (b) Surname
(c) Place of birth name (d) None of the above



23. It was first published in 1923, consisting of a collection of subject headings used in representative small libraries and later its scope was expanded to provide headings suitable for small as well as medium-sized libraries
- (a) Library of Congress Subject Heading
 - (b) Sears List of Subject Heading
 - (c) Chain Procedure
 - (d) All of the above
24. The periodical can be acquired by which of the following methods ?
- (a) By Subscription
 - (b) By Gift
 - (c) By Exchange
 - (d) All of the above
25. _____ is defined as the cataloguing of documents by some central organization for the benefit of the other libraries.
- (a) Subject Cataloguing
 - (b) Card Cataloguing
 - (c) Centralized Cataloguing
 - (d) None of the above
26. _____ is a system of giving a unique and non-changeable number of every book, which identifies each of these.
- (a) International Standard Serial Number (ISSN)
 - (b) International Standard Book Number (ISBN)
 - (c) Bar Code
 - (d) Book Serial Number
27. _____ are in the form of encyclopedia, dictionary, handbooks, tables, formularies etc.
- (a) Primary books
 - (b) Reference books
 - (c) Subject books
 - (d) All of the above
28. An indexing or abstracting periodical, a subject bibliography listing different types of primary documents are all
- (a) Primary Document
 - (b) Secondary Document
 - (c) Tertiary Document
 - (d) All of the above
29. A set of _____ publications are usually available for most of the subjects. These publications are usually designed to provide not the actual information or data but only information about information, i.e., sufficient indication leading to the location of sources of information.
- (a) Secondary
 - (b) Pre-print
 - (c) Reference
 - (d) Tertiary



30. _____ is the best “working tool” of a technologist.
(a) Reference Book (b) Handbook
(c) Digest Book (d) None of the above
31. The term _____ merely signifies the periodicity of the publication.
(a) Digest (b) Trade literature
(c) Yearbook (d) None of the above
32. _____ service consists of finding solving answers to specific queries put by readers and usually search in and extraction of information from a reference book, such as encyclopedia, a handbook, a directory or a formula.
(a) Ready reference service (b) Long-range reference
(c) Referral service (d) Current Awareness Service (CAS)
33. _____ is the instrument through which the library objectives can be fulfilled.
(a) Revelation of books (b) Stock upgradation
(c) Increasing staff (d) Marketing
34. _____ is an announcement mechanism usually in documentary form.
(a) Selective Dissemination of Information (SDI)
(b) Current Awareness Service (CAS)
(c) Abstracting Service
(d) Indexing Service
35. _____, who first gave us the concept of Selective Dissemination of Information (SDI), believed that the areas of interest of modern scientists and engineers have long ceased to conform with conventional concepts of disciplines.
(a) Margret Mann (b) Paul Otlet
(c) S. C. Bradford (d) H. Peter Luhn
36. _____ comprises the study of people’s need for, and use of information.
(a) Literature survey
(b) Information service survey
(c) User perception study
(d) User studies



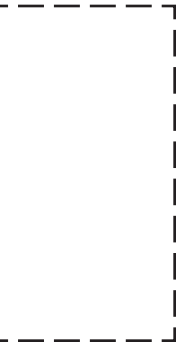
37. Fayol brought about five distinguish functions of administration namely, to plan, to organize, to command, to co-ordinate and to
- (a) Create
 - (b) Enhance
 - (c) Control
 - (d) Participate
38. _____ is the function concerned in the execution of policy within limit set up by administration and the employment of the organization for the particular objects before it.
- (a) Administration
 - (b) Management
 - (c) Staffing
 - (d) None of the above
39. Some library authorities consider library _____ as a source of revenue.
- (a) Subscription
 - (b) Providing a reading hall
 - (c) Open source resources
 - (d) Maintenance fund
40. The _____ contains the call number and the location mark of the book.
- (a) Library report
 - (b) Library statistics report
 - (c) Spine label
 - (d) None of the above
41. _____ enables the librarian to replace the essential lost books.
- (a) Preservation
 - (b) Technical service
 - (c) Stock verification
 - (d) Weeding procedure
42. The main sources of library statistics are the _____ maintained by various sections of the library and monthly and annual abstracts prepared by the statistical section of the library.
- (a) Staff manual
 - (b) Library attendance register
 - (c) Diaries
 - (d) Catalogue
43. _____ are devices responsible for feeding instructions and data into a computer.
- (a) Control Unit
 - (b) Central Processing Unit (CPU)
 - (c) Input Device
 - (d) Read Only Memory (ROM)



44. The first machine employing concepts similar to a computer was the analytical engine designed by
(a) Blaise Pascal (b) Jacob Bernoulli
(c) Gottfried Leibnitz (d) Charles Babbage
45. MS-DOS was developed by
(a) Apache Group (b) Microsoft
(c) LiteSpeed Technology (d) World Wide Web Consortium (W3C)
46. _____ is DOS's main Kernel and acts like a file and disk manager.
(a) Basis Input and Output System (b) Shell
(c) MSDOS-SYS (d) None of the above
47. A successful library automation project depends on
(a) Administrative goal (b) Location of the library
(c) Good financial delegation (d) Good management
48. _____ data element exists for bibliographic data, authoritative data, holdings information and community information.
(a) Machine Readable Cataloging (MARC)
(b) Library Automation
(c) Database
(d) None of the above
49. The _____ developed the Machine Readable Cataloging (MARC) format.
(a) Indian Library Association (ILA)
(b) Alexandria Public Library
(c) The British Public Library
(d) Library of Congress
50. _____ is data about other data.
(a) Digital Data (b) Statistical Data
(c) Analytical Data (d) Metadata
-



IEM – 25(H)





Series

A

CODE : IEM – 25(I)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component
Paper – 9 : Operation Theatre Technician

No. of Questions
1-50

Page No.
5-11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 9 : Operation Theatre Technician

1. The _____ cavity consists of two compartments, the thoracic cavity and the abdominal cavity.
(a) Ventral (b) Cranial (c) Dorsal (d) Pelvic
2. A horizontal plane that separates the body into upper and lower portions is called the _____ section.
(a) Transverse (b) Sagittal
(c) Frontal (d) Coronal
3. The function of storing energy in the form of true fats is performed by
(a) Cartilage tissue (b) Muscle tissue
(c) Connective tissue (d) Adipose tissue
4. _____ are single-membrane structures that contain digestive enzymes.
(a) Ribosomes (b) Lysosomes
(c) Mitochondria (d) Cell membrane
5. Which organelle is responsible for the destruction of old or damaged proteins ?
(a) Proteasomes (b) Ribosomes
(c) Golgi apparatus (d) Mitochondria
6. A solution with the same salt concentration as in cells is called
(a) Hypertonic solution (b) Hypotonic solution
(c) Isotonic solution (d) Concentrated solution
7. Where are epithelial tissues commonly found ?
(a) Only inside bones
(b) Inside the brain
(c) Only in muscles
(d) On surfaces as either coverings or linings
8. Endocrine glands are described as
(a) Glands with ducts (b) Ductless glands
(c) Glands that store blood (d) Glands that secrete sweat



9. White Blood Cells (WBCs) protect the body by
- (a) Transporting carbon dioxide only
 - (b) Destroying pathogens and providing immunity
 - (c) Forming blood clots
 - (d) Delivering nutrients
10. _____ consists mainly of parallel collagen fibers with a few fibroblasts scattered among them.
- (a) Fibrous connective tissue
 - (b) Adipose connective tissue
 - (c) Elastic connective tissue
 - (d) None of the above
11. _____ detect changes in the skin, provide information about the external environment that initiates appropriate responses.
- (a) Melanocytes
 - (b) Keratinocytes
 - (c) Fibroblasts
 - (d) Receptors
12. _____ looks solid but is very precisely structured, made of osteons or haversian systems.
- (a) Spongy bone
 - (b) Bone marrow
 - (c) Cartilage
 - (d) Compact bone
13. The ribs, shoulder blades, hip bones and cranial bones are examples of
- (a) Long bones
 - (b) Short bones
 - (c) Flat bones
 - (d) Irregular bones
14. Which cells produce the myelin sheath to electrically insulate neurons of the central nervous system ?
- (a) Schwann cells
 - (b) Astrocytes
 - (c) Oligodendrocytes
 - (d) Microglia
15. _____ are polymers of monosaccharide units with high molecular weight.
- (a) Monosaccharide
 - (b) Oligosaccharides
 - (c) Polysaccharides
 - (d) None of the above
16. Example for hexoses is
- (a) D-Glucose
 - (b) D-Galactose
 - (c) D-Mannose
 - (d) All of the above



17. _____ is the carbohydrate reserve of plants which is the most important dietary source for higher animals, including man.
(a) Glycogen (b) Glucose (c) Cellulose (d) Starch
18. The fatty acids cannot be synthesized by the body and therefore, should be supplied in the diet are known as
(a) Essential fatty acids (b) Saturated fatty acids
(c) Trans fatty acids (d) Volatile fatty acids
19. _____ is the linear sequence of amino acids forming the backbone of proteins.
(a) Primary structure (b) Secondary structure
(c) Tertiary structure (d) Quaternary structure
20. Hemoglobin and serum albumin functions mainly as
(a) Structural proteins (b) Hormonal proteins
(c) Transport proteins (d) Catalytic proteins
21. _____ is the combination of adenocarcinoma and squamous cell carcinoma in the endometrium.
(a) Adenosquamous carcinoma (b) Squamous carcinoma
(c) Epithelial carcinoma (d) Adenocarcinoma
22. _____ is defined as the process by which an article, surface or medium is freed of all living microorganisms either in vegetative or spore state.
(a) Sterilization (b) Disinfection
(c) Bactericidal agents (d) Bacteriostatic agents
23. Saturated steam has penetrative power, when steam comes into contact with a cooler surface it condenses to water and gives up its latent heat to that surface. Is the principle of
(a) Autoclave (b) Hot air oven (c) Flaming (d) Incinerator
24. _____ gas is used for sterilizing instruments and heat sensitive catheters and for fumigating wards, sick wards and laboratories.
(a) Methyl alcohol (b) Formaldehyde
(c) Incinerator (d) None of the above



25. _____ are obtained by distillation of coal tar between temperatures of 170°C and 270°C.
- (a) Aniline dyes
 - (b) Acridine dyes
 - (c) Phenols
 - (d) Metallic surface active agents
26. _____ is a colorless liquid with a boiling point of 10.7°C.
- (a) Formaldehyde gas
 - (b) Phenol
 - (c) Glutaraldehyde
 - (d) Ethylene oxide
27. A patient with a systemic disease that does not interfere with normal activity belongs to which American Society of Anesthesiologists classification ?
- (a) ASA I
 - (b) ASA V
 - (c) ASA III
 - (d) ASA II
28. Which drug class is considered a better alternative for pre-operative sedation and anxiolysis ?
- (a) Opioids
 - (b) Antibiotics
 - (c) Antihistamines
 - (d) Benzodiazepines
29. Which condition is considered a relative contraindication to regional anaesthesia ?
- (a) Full anticoagulation
 - (b) Patient refusal
 - (c) Septicaemia
 - (d) Pre-existing neurological deficit
30. The primary aim of general anaesthesia is to produce
- (a) Permanent unconsciousness
 - (b) Rapidly reversible loss of consciousness and amnesia
 - (c) Increased response to surgical stimulation
 - (d) Delayed recovery after surgery
31. Which statement is true regarding analgesia and muscle relaxation during general anaesthesia ?
- (a) They are completely avoided during surgery
 - (b) They are the primary goals of general anaesthesia
 - (c) They are usually provided by separate drugs
 - (d) They slow recovery significantly



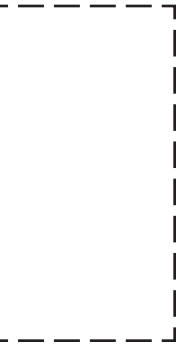
32. Regional anaesthesia for major procedures is mainly focused on providing neural blockade at the level of the
(a) Brain (b) Heart
(c) Spinal cord (d) Peripheral nerves only
33. Non-invasive measurement of haemoglobin saturation is known as
(a) Spirometry (b) Capnography (c) Oximetry (d) Angiography
34. Which opioid is commonly chosen for post-operative analgesia due to its relatively long duration of action ?
(a) Fentanyl (b) Alfentanil (c) Codeine (d) Morphine
35. When morphine is used with Patient-Controlled Analgesia Systems (PCAS), which of the following is correct ?
(a) A usual bolus dose is 5 mg with a lockout interval of 1 minute
(b) The patient must not control when doses are given
(c) The bolus dose should be infused slowly over 20 minutes
(d) A common bolus dose is 1.0 mg with a lockout interval of 5 to 8 minutes
36. Epidural opioids generally do not produce which of the following ?
(a) Sympathetic blockade (b) Severe pruritus
(c) Urinary retention (d) Respiratory depression
37. The surgical incision is typically made using a
(a) Scissors (b) Needle holder
(c) Scalpel (d) None of the above
38. Open drainage typically uses
(a) A rigid metal tube
(b) A glass catheter
(c) A closed vacuum suction system
(d) A soft flexible latex rubber tube or strip
39. The recommended time for suture removal on the face is
(a) 1 – 2 days (b) 10 – 14 days
(c) 7 – 10 days (d) 3 – 5 days



40. The intraoperative period refers to
- (a) The time before the patient enters the operating room
 - (b) The time frame and actions occurring between the first and last steps of an operative procedure
 - (c) Only the post-anaesthesia recovery period
 - (d) The time when the surgical consent is signed
41. Which of the following equipment is essential in the Postanesthesia Care Unit (PACU) ?
- (a) Ventilator only
 - (b) Dental chair
 - (c) Suction devices and crash cart
 - (d) Industrial sterilization units
42. Which of the following is considered a chemical hazard in the operating room ?
- (a) Sterile gloves
 - (b) Disinfecting agents
 - (c) Patient warming blankets
 - (d) Surgical gowns
43. The beam from surgical lights should be nonglare to prevent
- (a) Skin irritation
 - (b) Eye fatigue
 - (c) Increased room temperature
 - (d) Equipment malfunction
44. The term asepsis refers to
- (a) Presence of harmful microorganisms
 - (b) Partial reduction of infection
 - (c) Absence of microbes and infection
 - (d) Use of antibiotics only



45. Flexible endoscopes contain multiple channels that must be cleaned, including
- (a) Blood pressure and oxygen channels
 - (b) Suction, biopsy and air/water channels
 - (c) Ventilation and ECG channels
 - (d) Only one working channel
46. The lubrication process for surgical instruments is commonly called
- (a) Polishing
 - (b) Milking
 - (c) Flushing
 - (d) Coating
47. Preparation for sterilization of instruments begins after
- (a) Packaging
 - (b) Decontamination
 - (c) Storage
 - (d) Sterilization itself
48. The cutting edges of surgical scissors should
- (a) Have small burrs to improve grip
 - (b) Have no burrs or cracks
 - (c) Be slightly dull for safety
 - (d) Be loosely aligned
49. Packaging material used for sterilization must
- (a) Maintain sterility of items until use
 - (b) Be difficult to open for added protection
 - (c) Block sterilizing agents from entering
 - (d) Be reusable only
50. Nonwoven materials used for surgical packaging are designed to be
- (a) Reused multiple times
 - (b) Disposable and for single use
 - (c) Made from natural cotton fibers
 - (d) Washed and resterilized after use
-





Series

A

CODE : IEM – 25(J)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component

Paper – 10 : Pharmacist (Allopathy)

No. of Questions

1-50

Page No.

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 10 : Pharmacist (Allopathy)

1. Aclar with PVC is mainly used for
 - (a) IV solutions
 - (b) Ophthalmic preparations
 - (c) Blister film for oral solids
 - (d) Parenteral powders
2. Type III glass is suitable for
 - (a) Freeze-dried preparations
 - (b) Ophthalmic preparations
 - (c) Sterile injections
 - (d) Non-aqueous parenterals and powders
3. The preferred biological indicator organism used for steam sterilization is
 - (a) *Bacillus atrophaeus*
 - (b) *Geobacillus stearothermophilus*
 - (c) *Bacillus pumilis*
 - (d) *Clostridium sporogenes*
4. Feret's diameter (d_F) is measured using
 - (a) Microscopic method
 - (b) Sieving method
 - (c) Sedimentation method
 - (d) Light scattering method
5. Gray-colored eye drop caps are used for
 - (a) Nonsteroids
 - (b) Miotics
 - (c) Mydriatics
 - (d) Steroids
6. Methanol undergoes which metabolic reaction ?
 - (a) Reduction
 - (b) Hydrolysis
 - (c) Oxidation
 - (d) Acetylation
7. Amphetamine and its structural variants are therapeutically most useful as
 - (a) Antiepileptic drugs
 - (b) Anxiolytics
 - (c) Anorexiant
 - (d) Respiratory stimulants
8. The ring present in glimepiride is
 - (a) Pyrazine ring
 - (b) Piperidine ring
 - (c) Pyrrolidine ring
 - (d) Pyridine ring



9. Presence of the nitro group in chloramphenicol was confirmed by reduction using
 - (a) Zinc and hydrochloric acid
 - (b) Lithium aluminium hydride
 - (c) Sodium borohydride
 - (d) Tin and hydrochloric acid
10. Which of the following is not a major class of antimetabolites ?
 - (a) Antifolic acid compounds
 - (b) Analogues of purines
 - (c) Analogues of pyrimidines
 - (d) Topoisomerase inhibitors
11. Which natural compound inspired the development of local anaesthetics ?
 - (a) Morphine
 - (b) Dicoumarol
 - (c) Salicin
 - (d) Cocaine
12. In Ayurveda, diagnosis primarily refers to
 - (a) Identifying only the causative microorganism
 - (b) Monitoring health only during treatment
 - (c) Moment-to-moment monitoring interaction between order and disorder
 - (d) Detecting complications after disease progression
13. The curative power of a drug, according to drug proving, is defined as
 - (a) Its ability to destroy pathogens
 - (b) Its ability to produce therapeutic effects directly in diseased persons
 - (c) Its ability to produce disease symptoms in healthy individuals
 - (d) Its potency to produce rapid immunity
14. Which of the following shows dark reddish-brown colour and is used as an adulterant for hydrastis ?
 - (a) Rheum rhaponticum
 - (b) Cuprea bark
 - (c) Blood root
 - (d) Chirata
15. Conversion of etioplasts into chloroplasts under cytokinin influence occurs due to stimulation of
 - (a) Auxin synthesis
 - (b) Carotenoid breakdown
 - (c) Chlorophyll synthesis
 - (d) Phytochrome formation
16. Carbohydrate containing crude drugs include
 - (a) Tragacanth, Acacia, Isabgol
 - (b) Aloe, Digitalis, Senna
 - (c) Datura, Vinca, Cinchona
 - (d) Clove, Coriander, Cinnamon



17. Which of the following is a lipid-soluble hormone ?
(a) Insulin (b) Oxytocin
(c) Gastrin (d) Aldosterone
18. Christmas factor is another name for
(a) Factor VII (b) Factor VIII
(c) Factor IX (d) Factor XI
19. Which hormones primarily stimulate glycogenolysis ?
(a) Insulin and glucagon (b) Growth hormone and insulin
(c) Cortisol and thyroxine (d) Glucagon and epinephrine
20. Which two hormones have opposite effects on sodium handling and blood volume ?
(a) Aldosterone and Atrial Natriuretic Peptide (ANP)
(b) Antidiuretic Hormone (ADH) and Parathyroid Hormone (PTH)
(c) Angiotensin II and Parathyroid Hormone (PTH)
(d) Antidiuretic Hormone (ADH) and Aldosterone
21. Which type of hypoxia is characterized by normal P_{O_2} and oxyhemoglobin levels but reduced tissue perfusion ?
(a) Hypoxic hypoxia (b) Histotoxic hypoxia
(c) Anemic hypoxia (d) Ischemic hypoxia
22. Which of the following statements best describes passive transport across the cell membrane ?
(a) Requires ATP to move substances against the concentration gradient
(b) Moves substances down the concentration gradient until equilibrium without ATP
(c) Moves only ions across the membrane
(d) None of the above
23. In which stage of demographic transition does the death rate begin to decline while the birth rate remains high ?
(a) High stationary stage (b) Early expanding stage
(c) Late expanding stage (d) Low stationary stage



24. Cost-utility analysis (CUA) expresses outcomes in
- (a) Monetary units only
 - (b) Utility-based units like Quality Adjusted Life Years (QALY)
 - (c) Natural health units such as years of life saved
 - (d) Percentage improvement in productivity
25. Measuring the monetary gain when an intervention enables a person to return to work earlier is an example of
- (a) Cost-utility analysis (CUA)
 - (b) Cost-minimization analysis (CMA)
 - (c) Cost-effectiveness analysis (CEA)
 - (d) Cost-benefit analysis (CBA)
26. Which of the following is not a major use of epidemiology ?
- (a) To analyse the role of an agent, host, and environment in disease development
 - (b) To estimate a person's risk of developing a disease and survival chances
 - (c) To evaluate the effectiveness of health services through field studies
 - (d) To prescribe individualized treatment plans for patients
27. Which type of epidemiological study involves examining already existing records and comparing diseased individuals with a control group ?
- (a) Prospective study
 - (b) Experimental study
 - (c) Retrospective study
 - (d) Randomized clinical trial
28. Which of the following autacoids is not derived from amino acid-based synthesis ?
- (a) Histamine
 - (b) Serotonin
 - (c) Prostaglandin
 - (d) None of these
29. Which drug accumulates in adipose tissue because of high lipid solubility ?
- (a) Ephedrine
 - (b) Digoxin
 - (c) Thiopentone
 - (d) None of these
30. Which of the following is an outcome indicating better therapeutic success ?
- (a) More effective drug treatment
 - (b) Complicated drug treatment
 - (c) No effect on drug treatment
 - (d) None of the above



31. Pharmacist verifies the prescription order for
 - (a) Cost and packaging only
 - (b) Manufacturing date only
 - (c) Marketing approval
 - (d) Originality, correctness and drug safety

32. Pharmacists play a role in small-scale manufacture of medicines as per
 - (a) Good manufacturing and distribution practice
 - (b) Environmental protection rules
 - (c) Pharmacy Council election guidelines
 - (d) WHO travel regulations

33. The interpretation of ad libitum is
 - (a) With water
 - (b) Before meals
 - (c) Freely as wanted
 - (d) Equal parts

34. Which of the following is one of the main goals of communication in pharmacy practice ?
 - (a) Creating good interpersonal relationship
 - (b) Increasing prescription cost
 - (c) Promoting self-medication
 - (d) None of the above

35. Patient Information Leaflet (PIL) should include
 - (a) Trade and generic name of the medicine
 - (b) Family income details
 - (c) Patient's previous employers
 - (d) Hospital infrastructure details

36. Long-term use of OTC drugs can lead to
 - (a) Improved immunity
 - (b) Addiction and adverse effects
 - (c) Reduced need for healthcare professionals
 - (d) None of the above



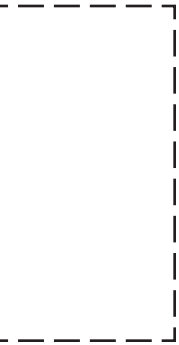
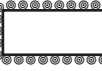
37. D-Ribose is a constituent of
(a) DNA (b) Heart muscle lyxoflavin
(c) Glycoproteins (d) RNA and nucleotides
38. Which of the following is a 4-carbon saturated fatty acid ?
(a) Propionic acid (b) Butyric acid
(c) Valeric acid (d) Caproic acid
39. Which of the following is an example of Oxidoreductases ?
(a) Alcohol dehydrogenase (b) Hexokinase
(c) Lipase (d) Aldolase
40. The Insulin test meal (Hollander's test) is mainly used to assess
(a) Completeness of gastrectomy (b) Completeness of vagotomy
(c) Blood glucose tolerance (d) None of the above
41. Which of the following antibiotics is commonly used for *Moraxella catarrhalis* infections ?
(a) Cefotaxime (b) Amoxicillin-clavulanate
(c) Ciprofloxacin (d) None of these
42. Which of the following is a partial seizure with impaired consciousness ?
(a) Simple partial seizure with motor symptoms
(b) Complex partial seizure
(c) Absence seizure
(d) Tonic seizure
43. Which of the following drugs increases the toxicity of carbamazepine by inhibiting its hepatic metabolism ?
(a) Erythromycin (b) Barbiturates
(c) Sodium bicarbonate (d) None of these
44. Which of the following is a compliance error ?
(a) Drug given by wrong route
(b) Patient fails to follow prescribed medication regimen
(c) Wrong dosage form used
(d) Administering expired drug



45. Which class of drugs mimics the response of the sympathetic nervous system ?
(a) Adrenergic agents (b) Adrenergic blocking agents
(c) Antihistamines (d) None of these
46. Which type of adverse drug reaction (ADR) is dose-dependent and usually predictable ?
(a) Type A (Augmented) (b) Type B (Bizarre)
(c) Type C (Continuous) (d) Type D (Delayed)
47. What is the punishment for contraventions related to poppy straw, opium poppy, coca plant, or psychotropic substances under the Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985 ?
(a) Fine of ₹ 1,000 – 5,000
(b) Rigorous imprisonment for 10 – 20 years
(c) Warning letter
(d) None of the above
48. Which of the following drug advertisements is prohibited under the Drugs and Magic Remedies Act, 1954 ?
(a) Advertisement claiming to improve general health with vitamins
(b) Advertisement claiming to cure cancer or epilepsy
(c) Advertisement for a prescription antibiotic
(d) None of the above
49. What is the punishment for illegal possession of cocaine, morphine, or diacetyl-morphine for personal use as per Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985 ?
(a) Imprisonment up to 6 months
(b) Imprisonment up to 1 year, or fine, or both
(c) Only fine
(d) No punishment
50. How many registered pharmacists are elected to the State Pharmacy Council as per Pharmacy Act, 1948 ?
(a) Three (b) Six (c) Five (d) One
-



IEM – 25(J)





Series

A

CODE : IEM – 25(K)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component

Paper – 11 : Publicity Assistant

No. of Questions

1-50

Page No.

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 11 : Publicity Assistant

1. Which sign indicates that vehicles are prohibited from making a U-Turn between the sign and the next intersection ?



2. Which of the following is a uses of baking soda (sodium hydrogencarbonate) related to fire safety ?
- (a) It is mixed with a mild edible acid to form baking powder, which produces carbon dioxide to make bread rise.
 - (b) It is used as an alkaline ingredient in antacids to neutralise excess stomach acid.
 - (c) It is an ingredient used in soda-acid fire extinguishers.
 - (d) When heated, it decomposes to form sodium salt of acid, which is used to treat burns.
3. How does the CO_2 produced by a fire extinguisher extinguish a fire in electrical equipment or flammable liquids like oil and petrol ?
- (a) The CO_2 chemically reacts with the burning substance to neutralize the fire.
 - (b) The CO_2 significantly lowers the ignition temperature of the combustible material.
 - (c) CO_2 creates a blanket around the combustible substance, thereby cutting off its supply of air.
 - (d) The CO_2 increases the temperature around the fire, causing the fuel to be consumed quickly.



4. According to Joule's law of heating, the heat produced in a resistor is directly proportional to which of the following factors ?
 - (a) The resistance for a given potential difference.
 - (b) The square of the resistance for a given current.
 - (c) The square of the current for a given resistance.
 - (d) The square of the time for which the current flows.
5. The potential difference between two points in a current carrying conductor is defined as one volt (1 V) when how much work is done to move a charge of one coulomb (1 C) from one point to the other ?
 - (a) 1 Joule of work is done
 - (b) 1 Watt of power is consumed
 - (c) 1 Ampere of current flows
 - (d) 1 Ohm of resistance is applied
6. A component of a given size that offers a low resistance is defined as which of the following ?
 - (a) An insulator
 - (b) A resistor
 - (c) Rheostat
 - (d) A good conductor
7. Why are the conductors of electric heating devices (like bread-toasters and electric irons) made of an alloy rather than a pure metal ?
 - (a) Alloys generally have a lower resistance than their constituent metals
 - (b) Alloys have a lower density, which reduces their overall cost
 - (c) Alloys do not oxidize (burn) readily at high temperatures
 - (d) None of the above
8. Which two materials are generally used for electrical transmission lines ?
 - (a) Tungsten and Iron
 - (b) Nichrome and Manganese
 - (c) Silver and Gold
 - (d) Copper and Aluminium
9. Which type of conductor joint is primarily used to connect a branch conductor to a main conductor when the branch runs perpendicular to the main ?
 - (a) Western Union Joint
 - (b) Britannia Joint
 - (c) T-Joint (Tap Joint)
 - (d) Scarfed Joint
10. What is the primary function of an electrical joint or splice ?
 - (a) To increase the overall resistance of the circuit
 - (b) To allow current flow only in one direction
 - (c) To ensure electrical continuity, low resistance and adequate mechanical strength between conductors
 - (d) To create a flexible connection point that can be easily disconnected



11. The process of cleaning the tip of a soldering iron and coating it with a thin layer of solder is known as
 - (a) Fluxing
 - (b) Drossing
 - (c) Sweating
 - (d) Tinning
12. Ohm's Law states that the potential difference across the ends of a given metallic wire in an electric circuit is directly proportional to the current flowing through it, provided which physical condition remains constant ?
 - (a) The pressure applied to the conductor
 - (b) The mass of the conductor
 - (c) The resistivity of the material
 - (d) The temperature of the conductor
13. A resistor with a resistance of 15 ohm is connected to a battery. If the current flowing through the resistor is 4 A, what is the potential difference across the terminals of the resistor ?
 - (a) 60 V
 - (b) 3.75 V
 - (c) 0.27 V
 - (d) 15 V
14. According to Kirchhoff's Current Law (KCL), the algebraic sum of currents meeting at any junction (node) in an electric circuit must be equal to
 - (a) The total voltage applied
 - (b) The total resistance of the circuit
 - (c) The sum of voltages leaving the junction
 - (d) Zero
15. The total potential difference in a series circuit is the _____ of potential differences across each individual component.
 - (a) Average
 - (b) Difference
 - (c) Product
 - (d) Sum
16. When resistors are connected in parallel, the total resistance of the circuit is always
 - (a) Greater than the largest individual resistance
 - (b) Equal to the average of the individual resistances
 - (c) Less than the lowest individual resistance
 - (d) Equal to the sum of the individual resistances



17. What is the primary condition that defines a balanced Wheatstone bridge ?
(a) The Electromotive Force (EMF) of the source is equal to zero
(b) The total current supplied by the battery is zero
(c) The current flowing through the galvanometer is zero
(d) None of the above
18. What is the simplest and quickest method for obtaining a non-precision, direct reading of a resistor's value ?
(a) Standard Ohmmeter
(b) Substitution Method
(c) Ammeter-Voltmeter Method
(d) None of the above
19. In a parallel circuit containing several resistors, which electrical quantity is the same across all individual resistor terminals ?
(a) Potential Difference (Voltage)
(b) Electric Current
(c) Power Dissipation
(d) Equivalent Resistance
20. When three resistors R_1 , R_2 and R_3 are connected in series, the equivalent resistance (R_{eq}) is calculated by
(a) $(1/R_1) + (1/R_2) + (1/R_3)$
(b) $R_1 * R_2 * R_3 / (R_1 + R_2 + R_3)$
(c) $R_1 + R_2 + R_3$
(d) $(R_1 + R_2 + R_3) / 3$
21. The direction of induced EMF in generators and alternators (Dynamically induced emf) is known by
(a) Lenz's Law
(b) Faraday's Law of Electromagnetic Induction
(c) Fleming's Left Hand Rule
(d) Fleming's Right Hand Rule
22. The generation of an electromotive force (EMF) in a secondary coil when the current in a neighboring primary coil changes is defined as
(a) Self-Capacitance
(b) Mutual Induction
(c) Series Impedance
(d) Skin Effect
23. A device that stores electrical energy in an electric field and consists of two conducting plates separated by a dielectric is called a
(a) Resistor
(b) Inductor
(c) Capacitor
(d) Transistor



24. What is the formula for capacitive reactance ?
(a) $X_C = 2\pi fL$ (b) $X_C = \frac{1}{2\pi fC}$ (c) $X_C = R/C$ (d) $X_C = C/R$
25. The power factor of a purely resistive DC circuit is
(a) Zero (b) Less than one (c) Indeterminate (d) Unity
26. For a standard sinusoidal waveform, the Peak Factor (Crest Factor) is the ratio of
(a) RMS value to average value (b) Maximum value to RMS value
(c) Average value to maximum value (d) None of the above
27. For a purely capacitive circuit, the ideal power factor is
(a) Zero (b) Unity (c) Lagging (d) Leading
28. In an AC circuit, the power factor is defined as the cosine of the angle (ϕ) between the
(a) Current and Resistance (b) Voltage and Current
(c) Current and Impedance (d) Voltage and Power
29. Two alternating currents are given by $i_1 = 10\sin(\omega t + 30^\circ)$ and $i_2 = 15\sin(\omega t - 45^\circ)$. What is the phase difference between the two currents ?
(a) 15° (b) 30° (c) 45° (d) 75°
30. If the peak value of an AC voltage is 325 V, what is its Root Mean Square (RMS) value, assuming a pure sinusoidal waveform ?
(a) 205.8 V (b) 230.0 V (c) 325.0 V (d) 162.5 V
31. An AC signal has a frequency (f) of 60 Hz. What is the time period (T) of the waveform ?
(a) 16.67 ms (b) 60 ms (c) 33.33 ms (d) 6.0 s
32. What is the main cause of low power factor in AC circuits ?
(a) Inductive loads (b) Resistive loads
(c) Capacitive loads (d) DC circuits
33. A 50 Hz AC circuit has an inductor of 0.2 H. What is the inductive reactance ?
(a) 31.4Ω (b) 62.8Ω (c) 94.2Ω (d) 125.6Ω



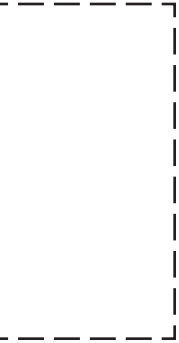
34. In an AC circuit with an apparent power of 100 VA and a power factor of 0.8, what is the active power ?
(a) 80 W (b) 100 W (c) 120 W (d) 60 W
35. Which application uses the chemical effect of electric current ?
(a) Electric heater (b) Electroplating
(c) Electric fan (d) Transformer
36. Which of the following effects is primarily utilized in the construction of commercial electrical instruments ?
(a) Magnetic effect (b) Heating effect
(c) Chemical effect (d) Electrostatic effect
37. Which type of wiring provides the best mechanical protection and fire resistance, making it ideal for industrial environments and underground installations ?
(a) Cleat wiring (b) Casing-and-capping wiring
(c) Batten wiring (d) Conduit wiring
38. The primary difference between an ordinary electrical switch and a relay is that a relay is actuated by
(a) Manual force (b) High temperature
(c) Electric current/voltage (d) Hydraulic pressure
39. Which accessory is used to protect an electrical circuit from overcurrent or short circuits ?
(a) Switch (b) Fuse
(c) Relay (d) None of the above
40. In a PN junction, the current produced by the effect of movement of charge carriers when an electric pulse is applied
(a) Drift current (b) Diffusion current
(c) Draft current (d) None of these
41. In a diode, flow of current is
(a) Unidirectional (b) Bidirectional
(c) Reverse (d) None of these



42. Why is a full-wave rectifier preferred over a half-wave rectifier ?
(a) It uses fewer diodes (b) It works without a transformer
(c) It rectifies both half-cycles of AC (d) It generates pure DC
43. Which feature of a semiconductor diode allows it to act as a rectifier ?
(a) Symmetric resistance
(b) Ability to block both positive and negative currents
(c) Low resistance in one direction and high in the other
(d) High resistance in both directions
44. The decimal equivalent of the binary number $(11010)_2$ is
(a) 25 (b) 27 (c) 24 (d) 26
45. The bandwidth (BW) of an Amplitude Modulated (AM) wave is equal to
(a) The carrier frequency (f_c)
(b) Twice the highest modulating frequency ($2 f_m$)
(c) The difference between the highest and lowest modulating frequencies
(d) The sum of the carrier frequency and the modulating frequency ($f_c + f_m$)
46. Which modulation type is commonly used for commercial radio broadcasting ?
(a) Amplitude Modulation (AM) (b) Pulse Code Modulation (PCM)
(c) Phase Modulation (PM) (d) None of the above
47. If an FM signal has a frequency deviation of 50 kHz and a modulating frequency of 5 kHz, what is the modulation index ?
(a) 5 (b) 10 (c) 15 (d) 20
48. If four 1.5 V cells are connected in series, what is the total voltage ?
(a) 1.5 V (b) 3 V (c) 4.5 V (d) 6 V
49. Which unit is used to measure the quantity of electricity in electrolysis ?
(a) Coulomb (b) Ampere
(c) Volt (d) None of the above
50. Separators in battery is a _____ material.
(a) conductive (b) non-conductive
(c) partly conductive (d) heavy conductive
-



IEM – 25(K)





Series

A

CODE : IEM – 25(L)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component

Paper – 12 : Radiography Technician

No. of Questions

1-50

Page No.

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method 	Wrong Method 	Wrong Method 	Correct Method
------------------	------------------	------------------	--------------------

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 12 : Radiography Technician

1. How many bones are present in the wrist joint (carpal bones) ?
(a) 5 (b) 6 (c) 7 (d) 8
2. What are the basic principal methods to reduce radiation exposure ?
(a) Reduce Time (b) Increase Distance
(c) Use Shielding (d) All of the above
3. How many lobes are present in the left and right lung respectively ?
(a) L-3; R-2 (b) L-1; R-2
(c) L-2; R-3 (d) L-2; R-1
4. Which of the following carries deoxygenated blood ?
(a) Pulmonary vein (b) Pulmonary trunk
(c) Aorta (d) Coronary artery
5. Which is the largest gland in the body ?
(a) Liver (b) Pancreas
(c) Thyroid gland (d) Salivary gland
6. Which part of the stomach commonly shows a gas bubble seen below the left dome of the diaphragm ?
(a) Body (b) Pylorus antrum
(c) Fundus (d) Pylorus canal
7. Which of the following is not part of the large intestine ?
(a) Caecum (b) Colon (c) Rectum (d) Ileum
8. Which organ is a muscular reservoir of urine ?
(a) Stomach (b) Urinary Bladder
(c) Liver (d) Pancreas



9. Which part of the uterine tube does fertilization take place ?
(a) Infundibulum (b) Ampulla
(c) Isthmus (d) Intramural
10. Which endocrine gland is situated in the lower part of the front and sides of the neck ?
(a) Thyroid (b) Pituitary
(c) Adrenal (d) Pancreas
11. Which is the outermost covering of the brain ?
(a) Dura mater (b) Arachnoid mater
(c) Pia mater (d) Subarachnoid
12. Which of the following sinuses is the largest paranasal sinus ?
(a) Frontal sinus (b) Maxillary sinus
(c) Sphenoid sinus (d) Ethmoid sinus
13. Which of the following is called as the powerhouse of cell ?
(a) Nucleus (b) Ribosomes
(c) Endoplasmic reticulum (d) Mitochondria
14. Which plasma protein helps in blood coagulation ?
(a) Albumin (b) Fibrinogen
(c) Globulin (d) Hemoglobin
15. Which chamber of the heart pumps oxygenated blood to different parts of the body ?
(a) Right Atrium (b) Left Atrium
(c) Right Ventricle (d) Left Ventricle
16. In Lungs, the exchange of gases occurs in
(a) Trachea (b) Bronchus
(c) Alveoli (d) Pleura



17. The kidney is made up of numerous functional microscopic units called the
(a) Nephron (b) Glomerulus
(c) Loop of henle (d) All of the above
18. The gastrocolic reflex refers to
(a) Movement of food into the small intestine
(b) Peristalsis in colon after eating food
(c) Secretion of gastric juices
(d) Relaxation of lower esophageal sphincter
19. Which organ produces bile ?
(a) Stomach (b) Pancreas
(c) Liver (d) Small intestine
20. Where does the Fertilization of the ovum usually occurs in ?
(a) Uterus (b) Fallopian tube
(c) Ovary (d) Cervix
21. What is the target material used in an X-ray tube ?
(a) Iron (b) Aluminium
(c) Tungsten (d) All of the above
22. The AP (Antero-posterior) lateral decubitus of the abdomen is primarily used to demonstrate
(a) Subdiaphragmatic gas (b) Fracture
(c) Calculi (d) None of the above
23. Which among the following helps to reduce scattered radiation ?
(a) Grids (b) Intensifying screens
(c) Filters (d) Cassette
24. Which among the following are used as phosphors in intensifying screens ?
(a) Zinc cadmium sulfide (b) Calcium tungstate
(c) Cesium iodide (d) All of the above



25. In the X-ray set, the filament circuit is used for
- (a) Accelerating electrons to target
 - (b) Control the emission of electrons
 - (c) Control beam quality
 - (d) Supply tube potential difference
26. The process of changing alternating current into direct current is called
- (a) Tube rating
 - (b) Transformer
 - (c) Rectification
 - (d) All of the above
27. The nucleus of an atom consist of
- (a) Protons and electrons
 - (b) Protons and neutrons
 - (c) Electrons and neutrons
 - (d) Only neutrons
28. The process when an excited nuclei comes to ground state by emission of gamma rays is called
- (a) Electron capture
 - (b) Isomeric transition
 - (c) Alpha decay
 - (d) Beta decay
29. The SI unit of absorbed dose is
- (a) Roentgen
 - (b) Sievert
 - (c) Gray
 - (d) None of the above
30. The principle of Thermoluminescent Dosimeters (TLD) is based on
- (a) Ionization of gas
 - (b) Changes in electrical resistance
 - (c) Emission of X-rays by excitation
 - (d) Emission of light when heated after radiation exposure
31. Which material is commonly used as filters in Thermoluminescent Dosimeters (TLD) ?
- (a) Aluminium
 - (b) Plastic
 - (c) Copper
 - (d) All of the above



32. The biological effects that occurs if the exposure is beyond a threshold dose is called
- (a) Deterministic effect
 - (b) Genetic effect
 - (c) Random effects
 - (d) Stochastic effect
33. In a darkroom, proper ventilation is required to
- (a) Keep the film warm
 - (b) Prevent light exposure
 - (c) Increase humidity
 - (d) Good film handling and storage conditions
34. The main purpose of a fixer solution is
- (a) To stop further development
 - (b) To remove remaining silver halide
 - (c) To render it chemically stable
 - (d) All of the above
35. The occipital frontal view with 15 degree caudad (Caldwell view) is done to demonstrate
- (a) Temporal bones
 - (b) Sella turcia
 - (c) Frontal and ethmoid sinus
 - (d) All of the above
36. The radiographic baseline extends from
- (a) the centre of two orbits
 - (b) infra-orbital point to external auditory meatus
 - (c) joins two infra-orbital points
 - (d) outer canthus of the eye to the centre of external auditory meatus
37. The oblique lumbar view mainly demonstrates the
- (a) Spinous process
 - (b) Transverse process
 - (c) Apophyseal joints
 - (d) Intervertebral disc



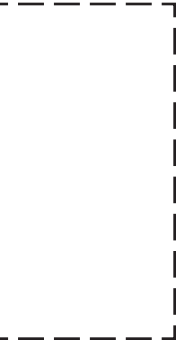
38. What is the full form of PACS ?
- (a) Picture archiving and control system
 - (b) Picture archiving and computation software
 - (c) Picture archiving and communication systems
 - (d) Patient archiving and communication systems
39. Which among the following is a negative contrast media ?
- (a) Barium
 - (b) Oily CM
 - (c) Air
 - (d) Iopanoic acid
40. Which among the following is a first line drug to treat anaphylactoid reaction ?
- (a) Epinephrine
 - (b) Frusemide
 - (c) Cimetidine
 - (d) Corticosteroids
41. Radiological procedure to evaluate the biliary ducts
- (a) Myelography
 - (b) Percutaneous transhepatic cholangiography
 - (c) Phlebography
 - (d) Dacrocystography
42. In IVU, nephrogram phase demonstrates
- (a) Renal parenchyma
 - (b) Urethra
 - (c) Urinary bladder
 - (d) Ureter
43. Micturating cystourethrogram is commonly performed in children to detect
- (a) Renal cyst
 - (b) Calculi
 - (c) Vesico-ureteral reflux
 - (d) Polyps
44. The main purpose of MR arthrography of the shoulder joint is to evaluate
- (a) Articular cartilage
 - (b) Biceps labral complex
 - (c) Capsular ligamentous complex
 - (d) All of the above



45. Blueberry juice/iron syrup is usually given before a Magnetic Resonance Cholangiopancreatography (MRCP) to
- (a) Brighten signal from stomach
 - (b) Suppress signal from stomach
 - (c) Brighten signal from bile duct
 - (d) None of the above
46. Which generation CT uses a pencil beam with single detector ?
- (a) 1st generation
 - (b) 2nd generation
 - (c) 3rd generation
 - (d) 4th generation
47. In CT, MPR (Multiplanar Reconstruction) allows viewing image in
- (a) Axial plane
 - (b) Coronal plane
 - (c) Sagittal plane
 - (d) All of the above
48. In Radiography, DSA stands for
- (a) Digital Subtraction Angiography
 - (b) Dual Source Acquisition
 - (c) Digital Scan Analysis
 - (d) Differential Static Angiogram
49. Which ultrasound mode displays motion of structures ?
- (a) TM mode
 - (b) B mode
 - (c) A mode
 - (d) Doppler
50. The principle of Doppler effect is based on
- (a) Attenuation of ultrasound beam
 - (b) Scattering of echoes
 - (c) Change in perceived frequency of sound by moving source
 - (d) None of the above
-



IEM – 25(L)





Series

A

CODE : IEM – 25(M)

Write here Roll Number and Answer Sheet No.

Question Booklet Sl. No.

Roll No.

--	--	--	--	--	--	--

Answer Sheet No.

--	--	--	--	--	--	--

Duration : 1 Hour

Total Marks : 100

Declaration by Invigilator :

I Certify that I have checked that the Roll Number and the Answer Sheet Number written by the Candidate on the question paper and the OMR Sheet are correct and the Answer Sheet Number matches the Question Booklet Number exactly.

Signature of the Invigilator with Name

Declaration by Candidate :

I undertake not to employ any unfair means in this exam. I have checked the Question Booklet Number and the Answer Sheet Number and both are identical and have been correctly entered by me wherever indicated.

Signature of the Candidate with Name

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS TO CANDIDATES

- The Roll No. is a 7 digit No., the candidate needs to circle the Roll No. in the Answer Sheet.
- The appropriate Circle should be shaded for Roll No. This should be done carefully because only the shaded circles are scanned.
- Valuation of Answer Sheet will be done on the computer. Candidate should not make any stray marks on the Answer Sheet, tamper with or mutilate it. Otherwise it will not be evaluated.
- Please check all the pages of the Booklet carefully. In case of any defect, please ask the Invigilator for replacement of the Booklet.
- You must not tear off or remove any sheet from this Booklet. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
- All questions are compulsory and each Question carries 2 marks.
- There is no negative marking for incorrect answers.**
- This Booklet contains 50 questions.

Test Component

Paper – 13 : Surveying

No. of Questions

1-50

Page No.

5 – 11

- Use of Calculator/Palmtop/Laptop/Other Digital Instrument/Mobile/Cell Phone/Pager is **not** allowed.
- Candidates found guilty of misconduct/using unfair means in the Examination Hall will be liable for appropriate penal/legal action.
- No Rough Work is to be done on the Answer Sheet and only single OMR Answer Sheet will be provided.**
- This booklet contains 12 pages.
- Directions :** Each question or incomplete statement is followed by four alternative suggested answers or completions. In each case, you are required to select the one that correctly answers the question or completes the statement and blacken (●) appropriate circle a, b, c or d by Black Ball-Point Pen provided by the Board against the question concerned in the Answer Sheet.
- Mark your answer by shading the appropriate circle against each question. The circle should be shaded completely without leaving any space. The correct method of shading is given below.

Wrong Method ☐ ☒ ☐ ☐	Wrong Method ☐ ☒ ☐ ☐	Wrong Method ☐ ☒ ☐ ☐	Correct Method ☐ ☒ ☐ ☐
--	--	--	--

The Candidate must mark his/her response after careful consideration, as it is not possible to change the response once it is marked.

- There is only one correct answer to each question. You should blacken (●) the circle of the appropriate column, viz., a, b, c or d. If you blacken (●) more than one circle against any one question, the answer will be treated as wrong.
- Use the space for rough work given at the beginning of the Question Booklet only and not on the Answer Sheet.
- You are NOT required to mark your answers in this Booklet. All answers must be indicated in the Answer Sheet only.**



DO NOT WRITE HERE



SPACE FOR ROUGH WORK



SPACE FOR ROUGH WORK



Paper – 13 : Surveying

1. In surveying the amount by which the sum of the angles of a spherical triangle exceeds by 180° is called
 - (a) Angular correction
 - (b) Spherical deficit
 - (c) Spherical excess
 - (d) Geodetic deviation
2. Archaeological Survey is used
 - (a) to determine the natural features of the country
 - (b) to fix the boundaries of municipalities
 - (c) to observe the fluctuations of the ocean tide
 - (d) for unearthing relics of antiquity
3. Cadastral surveys are also known as
 - (a) Topographical surveys
 - (b) City surveys
 - (c) Public land surveys
 - (d) None of these
4. The main idea of the surveying principle “working from whole to part” is to
 - (a) Reduce the measurements
 - (b) Increase the size of survey areas
 - (c) Localise the errors and prevent their accumulations
 - (d) Minimise the need for control stations
5. Why is a graphical scale always drawn on survey maps ?
 - (a) Makes the map look more professional
 - (b) Graphical scales are easier to construct than numerical scales
 - (c) Numerical scales gives accurate results even if the sheet shrinks
 - (d) Graphical scales shrink proportionately and the distances can be found accurately
6. What is the primary purpose of using conventional signs and symbols on maps ?
 - (a) To represent the objects and features clearly when the map is small
 - (b) To replace the need for colours on maps
 - (c) To reduce the cost of map production
 - (d) None of the above
7. How should the size of conventional signs and symbols be chosen for a map ?
 - (a) Size should be in proportion with the scale of the map
 - (b) All symbols should be kept very small regardless of map scale
 - (c) Larger symbols should be used only for artistic effect
 - (d) None of the above
8. What is the primary purpose of using an offset rod in surveying ?
 - (a) To measure rough offsets nearby
 - (b) To measure long survey lines directly
 - (c) To mark permanent survey stations
 - (d) To check the accuracy of chains



9. Which of the following details are recorded in the field book on the commencement of a Chain line ?
 - (a) Name or number of the chain line
 - (b) Name or number of the station
 - (c) The symbol denoting the station mark
 - (d) All of the above
10. Which type of field book is most commonly used for ordinary chain surveying work ?
 - (a) Cross-section field book
 - (b) Double line field book
 - (c) Loose-leaf field book
 - (d) None of these
11. Which of the following is a common source of compensating errors during field chaining operations ?
 - (a) Incorrect holding and marking of arrows
 - (b) Variation of temperature along the chain
 - (c) Erroneous overall length of the chain
 - (d) Miscounting full chain lengths
12. How is the true bearing of a line obtained from its magnetic bearing ?
 - (a) By multiplying the magnetic bearing with the declination
 - (b) By dividing the magnetic bearing by the declination
 - (c) By adding or subtracting the magnetic declination from the magnetic bearing
 - (d) None of the above
13. What is one of the primary functions of the levelling head in a theodolite ?
 - (a) To attach the theodolite to the tripod
 - (b) To store field notes during measurement
 - (c) To determine magnetic declination
 - (d) None of the above
14. In the procedure to measure angle ABC in theodolite, the reading on Vernier A after sighting station C gives
 - (a) Half of angle ABC
 - (b) The complement of angle ABC
 - (c) The direct value of angle ABC
 - (d) The back bearing of BC
15. Why is an open traverse considered less reliable compared to a closed traverse ?
 - (a) It cannot be used with a theodolite
 - (b) It has too many short lines
 - (c) It does not return to the starting point, so it cannot be checked and adjusted accurately
 - (d) None of the above
16. Tacheometry is preferred over chaining when
 - (a) The ground is rough or steep and rapid observations with ordinary precision are acceptable
 - (b) The ground is flat and very high accuracy is required
 - (c) The survey requires only vertical distances
 - (d) On surveys of higher accuracy, a late check on distances measured with tape or chain



17. A levelling staff is held vertical at distances of 100 m and 300 m from the axis of a tacheometer and the staff intercept for horizontal sights are 0.99 m and 3.00 m, respectively. Find the constants of the instrument.
- (a) $K = 100, C = 0.5$ (b) $K = 99.50, C = 1.5$
(c) $K = 1.0, C = 0$ (d) $K = 98, C = 2$
18. Which of the following tacheometric methods does not use stadia wires and relies only on vertical angles and staff intercepts obtained by the cross-wires ?
- (a) Fixed Hair (Stadia) Method (b) Tangential Method
(c) Subtense Method (d) None of these
19. Which of the following is a method of interpolating contours on a topographic map ?
- (a) Estimation (b) Arithmetic calculation
(c) Graphical method (d) All of the above
20. In plane table surveying, orientation is done to
- (a) Place the plotted station exactly over the ground station
(b) Bring the plane table to a horizontal plane using a spirit level
(c) Keep the plane table parallel to its position at the first station so that plotted lines correspond to ground lines
(d) None of the above
21. In surveying, when the center of a circular curve is inaccessible, which characteristic is commonly used to designate the curve ?
- (a) Radius of the curve (b) Degree of the curve
(c) Length of the tangents (d) None of these
22. When setting out a simple circular curve, the distance between any two successive points is called peg interval. How is this distance usually measured ?
- (a) Along the tangent line (b) Along the deflection angle
(c) Along the chord of the curve (d) None of these
23. Which of the following statements about a two-centred compound curve is correct ?
- (a) It consists of two circular arcs with the same radius joining at a common tangent.
(b) It consists of two circular arcs with different radii joining at a common tangent.
(c) It cannot be used to fit a location to the topography.
(d) None of the above



24. Which of the following is not an element of a reverse curve ?
- (a) The radii R_1 and R_2 of the two circular arcs
 - (b) The total deflection angle between straights
 - (c) The tangent length of a simple circular curve
 - (d) None of the above
25. Geographical Information refers to
- (a) Any information stored in digital format
 - (b) Information related to physical or chemical properties of materials
 - (c) Information tied to specific locations on the Earth's surface, including atmospheric zones
 - (d) None of the above
26. Which of the following is not an objective of Geographical Information System (GIS) ?
- (a) To maximise the efficiency of planning and decision making
 - (b) To eliminate redundant databases
 - (c) To integrate information from multiple sources
 - (d) To restrict access to geographical data and limit data distribution
27. Which of the following best describes a contour gradient on the ground ?
- (a) A line lying throughout on the surface of the ground and preserving a constant inclination to the horizontal
 - (b) A line joining points of different heights randomly
 - (c) A line along which the elevation decreases exponentially
 - (d) A line connecting only the highest points on the terrain
28. Which of the following is not a linear method of setting out a simple circular curve in surveying ?
- (a) Offsets from the long chord
 - (b) Perpendicular offsets from the tangent
 - (c) Successive bisection of arcs
 - (d) Using a transit theodolite for angular measurements
29. Which of the following is one of the basic principles of surveying that finds its inherent applications in all the stages of a project ?
- (a) To work from whole to part
 - (b) To work from lower level to higher level
 - (c) To work from higher level to lower level
 - (d) To work from part to whole
30. In Surveying, if we work from part to whole,
- (a) Prevent error accumulation
 - (b) Errors are localised
 - (c) Errors accumulate and expand to a greater magnitude
 - (d) None of the above



31. What is the Representative Fraction of buildings (Scale: 1cm = 10m) ?
(a) 1:10000 (b) 1:1000 (c) 1:2500 (d) 1:25000
32. Which statement best reflects the importance of chaining in chain surveying ?
(a) The distances determined by chaining form the basis of all surveying.
(b) Angles measured in a survey are always more important than distances.
(c) Chains are preferred over tapes for all types of precision work.
(d) None of the above
33. When commencing survey work, which one of the following options involve testing of chain ?
(a) Ensure rings are circular
(b) Check its links are not bent
(c) Ensure mud is not clinging to them
(d) All of the above
34. Which one of the following statements indicates the plan oriented on the sheet before the survey is started ?
(a) The north side of the survey lies towards the top of the sheet and it is centrally placed.
(b) The plan should be oriented according to the longest offset.
(c) The base line should be plotted last after all offsets are drawn.
(d) Triangles in the skeleton plan need not be checked against field measurements.
35. Which of the following is a temporary adjustment required every time a compass is set up for taking observations ?
(a) The compass is centred over the station, where the bearing is to be taken
(b) Adjusting the magnetic declination permanently
(c) Calibrating the compass needle
(d) Replacing the graduated ring
36. What is magnetic declination ?
(a) The horizontal angle between true north and magnetic north at the time of observation
(b) The angle between successive magnetic readings
(c) The deviation of the compass needle caused by local attraction
(d) The angle between the magnetic meridian and the surveyed line at the time of observation
37. _____ is a circular graduated arc attached to the trunnion axis of the telescope.
(a) Vernier frame (b) Foot screws
(c) Levelling head (d) Vertical circle
38. Which of the following is not a characteristic or use of a closed traverse ?
(a) It returns to the starting point forming a closed polygon
(b) It can begin and end on points whose positions on the plane are known
(c) It is mainly used for long narrow strips like highways and canals
(d) It is suitable for area determination and mapping control



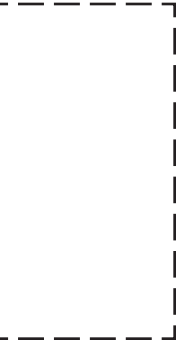
39. Which of the following statements is true regarding the Bowditch (Compass) Method of balancing a closed traverse ?
- (a) Total error in latitudes and in departures is distributed in proportion to the latitudes.
 - (b) Total error is distributed equally among all sides of the traverse.
 - (c) Total error in the latitude and in the departure is distributed in proportion to the lengths of the sides.
 - (d) Total error is applied only to the longest side of the traverse.
40. Which of the following is not a step involved when using Gale's Traverse Table in case of theodolite traversing ?
- (a) The included angles are adjusted to satisfy the geometrical conditions
 - (b) Latitudes and departures are worked out from the lengths and computed reduced bearings of the lines
 - (c) A check is done to find out whether the algebraic sum of latitudes and the algebraic sum of departures are zero
 - (d) The sum of the included angles should be $(2n \pm 2)/90^\circ$
41. _____ is an optical system consisting of two fixed prisms placed in the optical path between the eyepiece and the objective.
- (a) Suspension stabilizer
 - (b) Focusing screw
 - (c) Inverted pendulum
 - (d) Compensator
42. Which one of the following is the feature of the Wye level ?
- (a) The telescope is fixed to the spindle
 - (b) The telescope is carried in two vertical Wye supports
 - (c) The Wye level has no advantage over the dumpy level
 - (d) None of the above
43. With reference to Personal errors under Errors in leveling, which one of the following is a common mistake ?
- (a) Extending the staff properly
 - (b) Recording the field notes accurately
 - (c) Not allowing the turning point to change before its purpose is satisfied
 - (d) Reading the staff incorrectly
44. When using vertical staff holding in tacheometry, which of the following statements is correct ?
- (a) It is difficult to ensure the staff is perfectly vertical.
 - (b) On slopes a small error in the verticality of the staff results in serious errors in the computed distances.
 - (c) In ordinary work, the verticality of staff cannot be judged.
 - (d) On slopes a small error in the verticality of the staff results in no serious errors in the computed distances.



45. In the tangential method of tacheometry, two vanes were fixed 2 m apart, the lower vane being 0.5 m above the foot of the staff held vertical at station A. The vertical angles measured were $+1^{\circ}12'$ and $-1^{\circ}30'$. Find the horizontal distance of A from the instrument, if the height of line of collimation is 100 m.
- (a) 35.223 m (b) 42.433 m
(c) 50.0 m (d) 47.812 m
46. Why are curves introduced when two straights of a highway or railway are at some angle to each other ?
- (a) To reduce the length of the road or track
(b) To avoid an abrupt change in direction and to make the vehicle move safely, smoothly and comfortably
(c) To increase the speed of vehicles at intersections
(d) To mark the beginning and end of a straight section
47. Why is a transition curve usually introduced between a simple circular curve and a straight or between two simple circular curves ?
- (a) Because it shortens the length of the road or track
(b) To mark the boundaries of the road or track
(c) Because it increases the maximum speed of vehicles
(d) Because radius increases or decreases in a very gradual manner
48. Which of the following errors in Geographical Information System (GIS) is associated with data ?
- (a) Reliability decreases with age of data
(b) Sparsely dense dataset is less reliable
(c) Both (a) and (b)
(d) None of the above
49. What is ARC/INFO ?
- (a) A CAD tool (b) A GIS package
(c) A spreadsheet tool (d) No attribute linking
50. ISROGIS adopts _____ data structure, which is edge based structure that decomposes the vector in map into quads.
- (a) Grid (b) PM quadtree
(c) Pure arc node (d) TIN only
-



IEM – 25(M)



Answer Key for IEM – 25 (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		21	a
2	a		22	b
3	d		23	b
4	c		24	d
5	b		25	c
6	a		26	d
7	d		27	c
8	b		28	d
9	b		29	a
10	a		30	a
11	c		31	d
12	a		32	a
13	c		33	c
14	a		34	c
15	b		35	a
16	b		36	b
17	c		37	d
18	d		38	c
19	b		39	b
20	d		40	b

Answer Key for IEM – 25 (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		21	b
2	c		22	d
3	d		23	c
4	b		24	d
5	c		25	a
6	a		26	b
7	b		27	a
8	a		28	a
9	b		29	c
10	a		30	d
11	c		31	c
12	a		32	b
13	b		33	b
14	d		34	b
15	c		35	d
16	d		36	d
17	c		37	a
18	a		38	c
19	b		39	a
20	b		40	c

Answer Key for IEM – 25 (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		21	c
2	b		22	d
3	b		23	c
4	a		24	d
5	b		25	a
6	a		26	a
7	d		27	b
8	c		28	d
9	c		29	a
10	a		30	b
11	c		31	c
12	d		32	a
13	b		33	b
14	b		34	b
15	c		35	b
16	a		36	d
17	b		37	c
18	d		38	a
19	c		39	c
20	a		40	d

Answer Key for IEM – 25 (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		21	c
2	a		22	d
3	b		23	a
4	a		24	a
5	d		25	b
6	c		26	d
7	c		27	a
8	a		28	b
9	d		29	c
10	b		30	d
11	b		31	c
12	b		32	c
13	c		33	a
14	a		34	c
15	b		35	b
16	d		36	b
17	c		37	b
18	a		38	d
19	c		39	d
20	d		40	a

Answer Key for IEM – 25(A) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	c
2	a		27	b
3	d		28	d
4	c		29	c
5	b		30	a
6	b		31	a
7	b		32	c
8	a		33	c
9	b		34	d
10	b		35	a
11	a		36	b
12	c		37	d
13	d		38	c
14	c		39	d
15	b		40	d
16	a		41	a
17	b		42	a
18	a		43	c
19	d		44	b
20	b		45	a
21	c		46	b
22	d		47	c
23	b		48	d
24	d		49	c
25	c		50	a

Answer Key for IEM – 25(A) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		26	a
2	d		27	a
3	c		28	c
4	d		29	b
5	d		30	a
6	a		31	c
7	b		32	d
8	a		33	b
9	d		34	d
10	b		35	c
11	b		36	a
12	c		37	c
13	d		38	d
14	c		39	c
15	a		40	b
16	c		41	a
17	b		42	c
18	d		43	c
19	c		44	d
20	a		45	a
21	b		46	d
22	b		47	a
23	a		48	d
24	b		49	c
25	b		50	b

Answer Key for IEM – 25(A) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	a
2	b		27	c
3	a		28	d
4	d		29	c
5	b		30	b
6	a		31	d
7	c		32	a
8	c		33	d
9	d		34	c
10	a		35	b
11	c		36	a
12	d		37	a
13	b		38	c
14	d		39	b
15	c		40	a
16	b		41	b
17	d		42	b
18	c		43	a
19	d		44	b
20	d		45	b
21	b		46	c
22	c		47	b
23	d		48	d
24	c		49	c
25	a		50	a

Answer Key for IEM – 25(A) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	a
2	a		27	b
3	c		28	a
4	b		29	d
5	a		30	b
6	c		31	b
7	d		32	c
8	b		33	d
9	d		34	c
10	c		35	a
11	a		36	b
12	c		37	b
13	c		38	a
14	d		39	b
15	a		40	b
16	d		41	b
17	a		42	d
18	d		43	c
19	c		44	d
20	b		45	d
21	c		46	a
22	b		47	c
23	d		48	d
24	c		49	c
25	a		50	b

Answer Key for IEM – 25(B) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	c
2	d		27	c
3	b		28	b
4	b		29	d
5	d		30	a
6	b		31	c
7	d		32	d
8	a		33	a
9	b		34	a
10	d		35	b
11	b		36	a
12	c		37	c
13	b		38	c
14	d		39	b
15	a		40	c
16	d		41	b
17	d		42	a
18	a		43	d
19	c		44	a
20	a		45	a
21	b		46	b
22	d		47	d
23	c		48	c
24	c		49	a
25	c		50	b

Answer Key for IEM – 25(B) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		26	d
2	c		27	d
3	b		28	a
4	d		29	c
5	a		30	a
6	c		31	a
7	c		32	c
8	b		33	c
9	d		34	b
10	a		35	c
11	b		36	b
12	a		37	d
13	d		38	a
14	a		39	b
15	a		40	d
16	a		41	c
17	d		42	d
18	b		43	a
19	b		44	a
20	d		45	b
21	b		46	b
22	d		47	d
23	c		48	c
24	a		49	c
25	b		50	c

Answer Key for IEM – 25(B) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		26	a
2	d		27	c
3	a		28	c
4	b		29	b
5	d		30	c
6	d		31	b
7	d		32	d
8	a		33	c
9	c		34	c
10	a		35	c
11	c		36	a
12	d		37	d
13	a		38	b
14	a		39	b
15	b		40	d
16	b		41	c
17	d		42	c
18	c		43	b
19	a		44	d
20	b		45	a
21	b		46	b
22	c		47	a
23	b		48	d
24	d		49	a
25	a		50	a

Answer Key for IEM – 25(B) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	b
2	d		27	a
3	a		28	d
4	c		29	a
5	a		30	a
6	c		31	b
7	d		32	c
8	a		33	b
9	a		34	d
10	b		35	a
11	b		36	b
12	d		37	d
13	c		38	c
14	a		39	c
15	b		40	c
16	c		41	a
17	c		42	c
18	b		43	c
19	d		44	b
20	a		45	c
21	a		46	b
22	d		47	d
23	b		48	a
24	b		49	b
25	d		50	d

Answer Key for IEM – 25(C) (Set-A)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	a
2	d		27	b
3	a		28	b
4	b		29	c
5	c		30	c
6	c		31	c
7	a		32	d
8	d		33	c
9	a		34	c
10	d		35	d
11	d		36	c
12	c		37	b
13	a		38	b
14	a		39	b
15	d		40	d
16	d		41	c
17	d		42	d
18	b		43	a
19	d		44	b
20	b		45	c
21	a		46	c
22	d		47	b
23	a		48	b
24	a		49	b
25	a		50	a

Answer Key for IEM – 25(C) (Set-B)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	c
2	d		27	b
3	a		28	b
4	a		29	b
5	a		30	d
6	c		31	c
7	b		32	a
8	b		33	d
9	b		34	a
10	a		35	d
11	d		36	c
12	d		37	d
13	b		38	c
14	d		39	c
15	b		40	d
16	c		41	c
17	d		42	d
18	a		43	a
19	b		44	b
20	c		45	c
21	d		46	a
22	c		47	b
23	a		48	b
24	a		49	c
25	d		50	c

Answer Key for IEM – 25(C) (Set-C)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	c
2	d		27	d
3	a		28	c
4	b		29	c
5	c		30	d
6	a		31	d
7	d		32	c
8	a		33	a
9	a		34	a
10	a		35	d
11	c		36	c
12	d		37	b
13	a		38	b
14	b		39	b
15	c		40	a
16	a		41	d
17	b		42	d
18	b		43	b
19	c		44	d
20	c		45	b
21	c		46	c
22	a		47	b
23	d		48	b
24	a		49	b
25	d		50	d

Answer Key for IEM – 25(C) (Set-D)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	d
2	a		27	d
3	d		28	b
4	a		29	d
5	d		30	b
6	c		31	a
7	d		32	b
8	a		33	b
9	b		34	c
10	c		35	c
11	a		36	c
12	d		37	d
13	a		38	a
14	a		39	b
15	a		40	c
16	c		41	c
17	b		42	b
18	b		43	b
19	b		44	b
20	a		45	d
21	c		46	d
22	d		47	c
23	c		48	a
24	c		49	a
25	d		50	d

Answer Key for IEM – 25(D) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	b
2	a		27	c
3	b		28	b
4	c		29	a
5	a		30	a
6	c		31	d
7	d		32	b
8	c		33	d
9	c		34	b
10	a		35	b
11	c		36	d
12	d		37	a
13	c		38	a
14	a		39	c
15	d		40	b
16	c		41	a
17	a		42	b
18	b		43	c
19	a		44	b
20	d		45	c
21	d		46	a
22	c		47	b
23	b		48	a
24	d		49	d
25	d		50	b

Answer Key for IEM – 25(D) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	d
2	d		27	a
3	c		28	b
4	a		29	c
5	d		30	a
6	b		31	d
7	c		32	a
8	b		33	a
9	a		34	c
10	a		35	b
11	a		36	d
12	b		37	c
13	c		38	b
14	b		39	d
15	c		40	d
16	c		41	a
17	d		42	b
18	c		43	a
19	c		44	d
20	a		45	b
21	c		46	d
22	a		47	b
23	b		48	d
24	a		49	b
25	d		50	b

Answer Key for IEM – 25(D) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	d
2	d		27	c
3	c		28	b
4	c		29	d
5	a		30	d
6	c		31	a
7	a		32	b
8	b		33	a
9	a		34	d
10	d		35	b
11	b		36	c
12	c		37	d
13	b		38	c
14	a		39	a
15	a		40	d
16	d		41	d
17	a		42	b
18	a		43	d
19	c		44	b
20	b		45	b
21	d		46	a
22	a		47	b
23	b		48	c
24	c		49	b
25	a		50	c

Answer Key for IEM – 25(D) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		26	c
2	c		27	d
3	b		28	c
4	a		29	a
5	a		30	d
6	d		31	d
7	a		32	c
8	b		33	b
9	c		34	d
10	a		35	d
11	c		36	a
12	a		37	b
13	b		38	a
14	a		39	d
15	d		40	b
16	d		41	d
17	b		42	a
18	d		43	a
19	b		44	c
20	b		45	b
21	a		46	c
22	b		47	d
23	c		48	c
24	b		49	c
25	c		50	a

Answer Key for IEM – 25(E) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	d
2	c		27	b
3	a		28	b
4	b		29	d
5	b		30	d
6	c		31	c
7	a		32	b
8	b		33	b
9	a		34	d
10	a		35	d
11	c		36	c
12	a		37	c
13	b		38	b
14	a		39	c
15	a		40	d
16	d		41	b
17	a		42	c
18	d		43	c
19	c		44	d
20	a		45	b
21	d		46	d
22	a		47	c
23	a		48	b
24	c		49	d
25	b		50	c

Answer Key for IEM – 25(E) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	c
2	c		27	b
3	b		28	b
4	c		29	d
5	d		30	d
6	d		31	c
7	a		32	a
8	d		33	b
9	c		34	a
10	a		35	a
11	d		36	b
12	c		37	c
13	b		38	c
14	d		39	d
15	c		40	b
16	d		41	c
17	b		42	a
18	b		43	b
19	d		44	a
20	d		45	a
21	a		46	d
22	c		47	a
23	a		48	a
24	b		49	c
25	b		50	b

Answer Key for IEM – 25(E) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	c
2	a		27	a
3	d		28	b
4	c		29	a
5	a		30	a
6	d		31	d
7	c		32	b
8	b		33	b
9	d		34	d
10	c		35	d
11	a		36	c
12	c		37	a
13	a		38	b
14	b		39	a
15	b		40	a
16	b		41	d
17	c		42	a
18	c		43	a
19	d		44	c
20	b		45	b
21	c		46	c
22	b		47	c
23	b		48	b
24	d		49	c
25	d		50	d

Answer Key for IEM – 25(E) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	c
2	a		27	c
3	a		28	b
4	c		29	c
5	b		30	d
6	c		31	d
7	a		32	c
8	b		33	b
9	a		34	d
10	a		35	c
11	d		36	d
12	b		37	a
13	b		38	d
14	d		39	c
15	d		40	a
16	c		41	c
17	a		42	b
18	b		43	b
19	a		44	d
20	a		45	d
21	b		46	a
22	c		47	c
23	c		48	a
24	d		49	b
25	b		50	b

Answer Key for IEM-25(F) (Set-A)

Question No.	Answer Key		Question No.	Answer Key
1	a		26	d
2	b		27	a
3	a		28	b
4	a		29	b
5	a		30	c
6	a		31	d
7	b		32	c
8	c		33	a
9	a		34	d
10	c		35	b
11	a		36	a
12	d		37	c
13	c		38	b
14	c		39	b
15	d		40	c
16	c		41	b
17	d		42	d
18	c		43	b
19	b		44	a
20	b		45	d
21	a		46	b
22	d		47	c
23	d		48	c
24	d		49	d
25	c		50	d

Answer Key for IEM-25(F) (Set-B)

Question No.	Answer Key		Question No.	Answer Key
1	b		26	a
2	c		27	b
3	c		28	c
4	d		29	a
5	d		30	c
6	a		31	c
7	d		32	d
8	c		33	c
9	c		34	b
10	d		35	b
11	b		36	d
12	d		37	c
13	b		38	a
14	a		39	d
15	d		40	b
16	d		41	a
17	a		42	b
18	b		43	a
19	b		44	a
20	c		45	a
21	a		46	a
22	c		47	d
23	b		48	d
24	b		49	d
25	c		50	c

Answer Key for IEM-25(F) (Set-C)

Question No.	Answer Key		Question No.	Answer Key
1	a		26	a
2	d		27	d
3	c		28	d
4	c		29	d
5	d		30	c
6	a		31	b
7	c		32	d
8	b		33	b
9	b		34	a
10	c		35	d
11	d		36	a
12	a		37	b
13	b		38	c
14	b		39	a
15	c		40	c
16	a		41	d
17	b		42	c
18	a		43	a
19	a		44	d
20	a		45	b
21	b		46	c
22	c		47	d
23	c		48	c
24	d		49	b
25	d		50	b

Answer Key for IEM-25(F) (Set-D)

Question No.	Answer Key		Question No.	Answer Key
1	d		26	a
2	a		27	c
3	b		28	b
4	b		29	b
5	c		30	c
6	b		31	a
7	c		32	b
8	c		33	c
9	d		34	a
10	d		35	c
11	c		36	a
12	d		37	d
13	c		38	d
14	b		39	d
15	b		40	c
16	b		41	a
17	d		42	d
18	b		43	c
19	a		44	c
20	d		45	d
21	a		46	d
22	b		47	c
23	a		48	a
24	a		49	d
25	a		50	b

Answer Key for IEM – 25(G) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	a
2	a		27	d
3	a		28	d
4	a		29	b
5	c		30	b
6	d		31	b
7	c		32	c
8	a		33	d
9	a		34	a
10	b		35	c
11	a		36	b
12	c		37	d
13	c		38	c
14	a		39	a
15	b		40	c
16	d		41	d
17	d		42	c
18	b		43	b
19	b		44	b
20	d		45	d
21	b		46	c
22	d		47	b
23	d		48	c
24	c		49	d
25	a		50	b

Answer Key for IEM – 25(G) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	a
2	d		27	c
3	d		28	c
4	b		29	a
5	b		30	b
6	c		31	d
7	b		32	c
8	c		33	b
9	d		34	b
10	b		35	d
11	d		36	b
12	d		37	c
13	b		38	d
14	b		39	a
15	d		40	c
16	b		41	d
17	d		42	c
18	c		43	a
19	a		44	a
20	c		45	b
21	c		46	b
22	a		47	d
23	a		48	d
24	a		49	c
25	c		50	a

Answer Key for IEM – 25(G) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	b
2	d		27	c
3	b		28	d
4	b		29	a
5	d		30	c
6	a		31	c
7	d		32	a
8	d		33	a
9	b		34	a
10	b		35	c
11	c		36	d
12	b		37	c
13	c		38	b
14	d		39	b
15	b		40	d
16	d		41	b
17	c		42	d
18	a		43	d
19	a		44	c
20	b		45	a
21	b		46	a
22	d		47	c
23	c		48	c
24	a		49	a
25	c		50	b

Answer Key for IEM – 25(G) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	c
2	c		27	b
3	b		28	c
4	b		29	d
5	d		30	b
6	b		31	d
7	c		32	d
8	d		33	b
9	a		34	b
10	c		35	d
11	d		36	c
12	c		37	a
13	a		38	a
14	a		39	a
15	b		40	c
16	b		41	b
17	d		42	d
18	d		43	c
19	c		44	a
20	a		45	c
21	a		46	a
22	c		47	d
23	c		48	d
24	a		49	b
25	b		50	b

Answer Key for IEM – 25(H) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	b
2	b		27	b
3	a		28	b
4	c		29	d
5	c		30	b
6	a		31	c
7	a		32	a
8	d		33	d
9	b		34	b
10	d		35	d
11	b		36	d
12	a		37	c
13	c		38	b
14	a		39	a
15	a		40	c
16	a		41	c
17	d		42	c
18	c		43	c
19	b		44	d
20	a		45	b
21	d		46	c
22	b		47	d
23	b		48	a
24	d		49	d
25	c		50	d

Answer Key for IEM – 25(H) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	c
2	c		27	d
3	c		28	a
4	d		29	d
5	b		30	d
6	d		31	a
7	b		32	d
8	b		33	c
9	d		34	b
10	c		35	a
11	a		36	b
12	b		37	a
13	a		38	c
14	c		39	a
15	c		40	a
16	b		41	c
17	b		42	a
18	b		43	d
19	d		44	b
20	b		45	d
21	d		46	a
22	c		47	a
23	b		48	d
24	a		49	b
25	c		50	d

Answer Key for IEM – 25(H) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		26	a
2	a		27	d
3	c		28	c
4	a		29	b
5	a		30	a
6	b		31	a
7	b		32	b
8	b		33	a
9	d		34	c
10	b		35	c
11	c		36	c
12	c		37	d
13	c		38	a
14	d		39	d
15	b		40	d
16	a		41	d
17	a		42	b
18	d		43	b
19	b		44	d
20	d		45	c
21	c		46	d
22	a		47	c
23	d		48	b
24	b		49	a
25	d		50	c

Answer Key for IEM – 25(H) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	d
2	a		27	c
3	d		28	b
4	b		29	a
5	d		30	c
6	c		31	c
7	a		32	d
8	d		33	a
9	b		34	d
10	d		35	d
11	a		36	c
12	d		37	c
13	c		38	c
14	b		39	d
15	a		40	b
16	a		41	b
17	b		42	b
18	a		43	b
19	c		44	d
20	c		45	b
21	b		46	d
22	a		47	b
23	c		48	b
24	a		49	d
25	a		50	c

Answer Key for IEM – 25(I) (Set – A)				
Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	d
2	a		27	d
3	d		28	d
4	b		29	d
5	a		30	b
6	c		31	c
7	d		32	c
8	b		33	c
9	b		34	d
10	a		35	d
11	d		36	a
12	d		37	c
13	c		38	d
14	c		39	d
15	c		40	b
16	d		41	c
17	d		42	b
18	a		43	b
19	a		44	c
20	c		45	b
21	a		46	b
22	a		47	b
23	a		48	b
24	b		49	a
25	c		50	b

Answer Key for IEM – 25(I) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	c
2	d		27	c
3	a		28	c
4	a		29	d
5	c		30	d
6	a		31	c
7	c		32	d
8	d		33	b
9	d		34	b
10	b		35	a
11	a		36	b
12	a		37	b
13	d		38	b
14	b		39	a
15	a		40	b
16	d		41	a
17	d		42	a
18	d		43	a
19	d		44	b
20	b		45	c
21	c		46	d
22	b		47	d
23	b		48	c
24	c		49	c
25	b		50	c

Answer Key for IEM – 25(I) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	a
2	d		27	a
3	c		28	d
4	c		29	b
5	c		30	a
6	d		31	a
7	d		32	a
8	d		33	a
9	d		34	b
10	b		35	c
11	b		36	c
12	b		37	b
13	b		38	b
14	a		39	c
15	b		40	b
16	a		41	c
17	c		42	c
18	d		43	c
19	d		44	d
20	b		45	d
21	d		46	c
22	d		47	d
23	a		48	b
24	a		49	b
25	c		50	a

Answer Key for IEM – 25(I) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		26	d
2	b		27	d
3	b		28	c
4	a		29	c
5	b		30	c
6	c		31	a
7	c		32	c
8	c		33	d
9	d		34	d
10	d		35	b
11	a		36	c
12	a		37	d
13	a		38	b
14	b		39	b
15	c		40	a
16	c		41	d
17	b		42	d
18	b		43	a
19	c		44	a
20	b		45	c
21	a		46	d
22	a		47	d
23	d		48	d
24	b		49	d
25	a		50	b

Answer Key for IEM – 25(J) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	d
2	d		27	c
3	b		28	c
4	a		29	c
5	a		30	a
6	c		31	d
7	c		32	a
8	c		33	c
9	d		34	a
10	d		35	a
11	d		36	b
12	c		37	d
13	c		38	b
14	c		39	a
15	c		40	b
16	a		41	b
17	d		42	b
18	c		43	a
19	d		44	b
20	a		45	a
21	d		46	a
22	b		47	b
23	b		48	b
24	b		49	b
25	d		50	b

Answer Key for IEM – 25(J) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	b
2	b		27	d
3	b		28	b
4	b		29	a
5	d		30	b
6	c		31	d
7	d		32	c
8	b		33	c
9	a		34	c
10	a		35	c
11	d		36	b
12	a		37	b
13	c		38	a
14	a		39	b
15	a		40	a
16	a		41	d
17	b		42	c
18	b		43	c
19	b		44	c
20	b		45	a
21	c		46	a
22	c		47	d
23	c		48	c
24	d		49	d
25	d		50	a

Answer Key for IEM – 25(J) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	a
2	c		27	d
3	c		28	c
4	c		29	d
5	c		30	a
6	d		31	c
7	b		32	c
8	b		33	c
9	b		34	d
10	d		35	d
11	b		36	a
12	b		37	b
13	a		38	b
14	b		39	b
15	a		40	b
16	c		41	b
17	d		42	d
18	b		43	b
19	a		44	a
20	a		45	b
21	d		46	d
22	a		47	c
23	c		48	c
24	a		49	c
25	a		50	a

Answer Key for IEM – 25(J) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	c
2	d		27	c
3	c		28	c
4	d		29	d
5	a		30	d
6	b		31	b
7	d		32	b
8	b		33	a
9	a		34	b
10	b		35	a
11	a		36	d
12	b		37	a
13	b		38	c
14	b		39	a
15	b		40	a
16	d		41	d
17	c		42	b
18	c		43	b
19	c		44	b
20	a		45	d
21	d		46	c
22	c		47	d
23	c		48	b
24	c		49	a
25	c		50	a

Answer Key for IEM – 25(K) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		26	b
2	c		27	a
3	c		28	b
4	c		29	d
5	a		30	b
6	d		31	a
7	c		32	a
8	d		33	b
9	c		34	a
10	c		35	b
11	d		36	a
12	d		37	d
13	a		38	c
14	d		39	b
15	d		40	a
16	c		41	a
17	c		42	c
18	a		43	c
19	a		44	d
20	c		45	b
21	d		46	a
22	b		47	b
23	c		48	d
24	b		49	a
25	d		50	b

Answer Key for IEM – 25(K) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	a
2	b		27	c
3	c		28	c
4	b		29	d
5	d		30	b
6	a		31	c
7	d		32	c
8	c		33	a
9	b		34	a
10	a		35	c
11	a		36	d
12	b		37	c
13	d		38	d
14	a		39	c
15	b		40	c
16	d		41	a
17	d		42	a
18	a		43	b
19	d		44	a
20	d		45	b
21	b		46	b
22	c		47	a
23	c		48	b
24	c		49	d
25	a		50	b

Answer Key for IEM – 25(K) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	c
2	d		27	c
3	a		28	a
4	d		29	a
5	d		30	c
6	b		31	d
7	a		32	c
8	b		33	d
9	d		34	c
10	b		35	c
11	a		36	a
12	c		37	b
13	c		38	d
14	d		39	a
15	b		40	b
16	b		41	d
17	c		42	b
18	c		43	c
19	c		44	b
20	a		45	d
21	a		46	a
22	a		47	d
23	b		48	c
24	a		49	b
25	b		50	a

Answer Key for IEM – 25(K) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	d
2	c		27	c
3	a		28	d
4	a		29	c
5	c		30	c
6	b		31	d
7	c		32	b
8	c		33	c
9	c		34	b
10	a		35	d
11	b		36	a
12	a		37	c
13	b		38	c
14	d		39	d
15	b		40	b
16	a		41	a
17	b		42	d
18	d		43	c
19	a		44	b
20	b		45	a
21	d		46	a
22	d		47	a
23	a		48	b
24	d		49	a
25	d		50	b

Answer Key for IEM – 25(L) (Set – A)

Question No.	Ans. Key		Question No.	Ans. Key
1	d		26	c
2	d		27	b
3	c		28	b
4	b		29	c
5	a		30	d
6	c		31	d
7	d		32	a
8	b		33	d
9	b		34	d
10	a		35	c
11	a		36	d
12	b		37	c
13	d		38	c
14	b		39	c
15	d		40	a
16	c		41	b
17	a		42	a
18	b		43	c
19	c		44	d
20	b		45	b
21	c		46	a
22	a		47	d
23	a		48	a
24	d		49	a
25	b		50	c

Answer Key for IEM – 25(L) (Set – B)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	a
2	a		27	d
3	b		28	a
4	c		29	a
5	b		30	c
6	d		31	d
7	a		32	d
8	d		33	c
9	d		34	b
10	c		35	a
11	c		36	c
12	a		37	b
13	a		38	b
14	d		39	c
15	b		40	d
16	b		41	a
17	a		42	b
18	c		43	d
19	d		44	b
20	b		45	d
21	c		46	d
22	d		47	c
23	b		48	c
24	b		49	c
25	a		50	a

Answer Key for IEM – 25(L) (Set – C)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	d
2	d		27	d
3	a		28	c
4	a		29	b
5	c		30	a
6	c		31	b
7	b		32	a
8	b		33	c
9	c		34	d
10	d		35	b
11	c		36	c
12	d		37	a
13	b		38	b
14	b		39	c
15	a		40	b
16	c		41	d
17	a		42	c
18	a		43	c
19	d		44	c
20	b		45	a
21	d		46	a
22	a		47	b
23	d		48	d
24	d		49	b
25	c		50	d

Answer Key for IEM – 25(L) (Set – D)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	d
2	a		27	c
3	a		28	c
4	d		29	c
5	b		30	a
6	a		31	c
7	b		32	b
8	d		33	b
9	b		34	c
10	d		35	d
11	d		36	c
12	a		37	d
13	d		38	b
14	d		39	b
15	c		40	a
16	d		41	c
17	d		42	a
18	c		43	b
19	b		44	c
20	a		45	b
21	a		46	b
22	d		47	a
23	a		48	c
24	a		49	d
25	c		50	b

Answer Key for IEM – 25(M) (Set-A)

Question No.	Ans. Key		Question No.	Ans. Key
1	c		26	d
2	d		27	a
3	c		28	d
4	c		29	a
5	d		30	c
6	a		31	b
7	a		32	a
8	a		33	d
9	d		34	a
10	b		35	a
11	a		36	a
12	c		37	d
13	a		38	c
14	c		39	c
15	c		40	d
16	a		41	d
17	b		42	b
18	b		43	d
19	d		44	b
20	c		45	b
21	b		46	b
22	c		47	d
23	b		48	c
24	c		49	b
25	c		50	b

Answer Key for IEM – 25(M) (Set-B)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	a
2	b		27	d
3	b		28	c
4	d		29	c
5	c		30	d
6	d		31	b
7	b		32	d
8	d		33	c
9	b		34	b
10	b		35	b
11	c		36	a
12	d		37	c
13	c		38	a
14	c		39	c
15	d		40	c
16	d		41	b
17	a		42	a
18	d		43	d
19	a		44	a
20	c		45	a
21	a		46	b
22	a		47	c
23	a		48	b
24	d		49	c
25	b		50	c

Answer Key for IEM – 25(M) (Set-C)

Question No.	Ans. Key		Question No.	Ans. Key
1	b		26	b
2	a		27	d
3	d		28	c
4	a		29	b
5	a		30	b
6	a		31	a
7	b		32	a
8	b		33	a
9	d		34	d
10	c		35	b
11	d		36	b
12	b		37	c
13	d		38	b
14	b		39	c
15	b		40	c
16	a		41	c
17	c		42	d
18	a		43	c
19	c		44	c
20	c		45	d
21	d		46	a
22	a		47	d
23	d		48	c
24	a		49	c
25	c		50	d

Answer Key for IEM – 25(M) (Set-D)

Question No.	Ans. Key		Question No.	Ans. Key
1	a		26	c
2	a		27	d
3	a		28	c
4	d		29	c
5	b		30	d
6	b		31	d
7	a		32	a
8	d		33	d
9	a		34	a
10	a		35	c
11	b		36	b
12	c		37	d
13	b		38	c
14	c		39	b
15	c		40	b
16	d		41	a
17	b		42	d
18	d		43	c
19	b		44	c
20	b		45	d
21	a		46	a
22	b		47	c
23	b		48	a
24	d		49	c
25	c		50	c



GOVERNMENT OF ARUNACHAL PRADESH
ARUNACHAL PRADESH STAFF SELECTION BOARD
ITANAGAR

NO. APSSB-13/13/2025 /769

Dated 12th Dec'2025

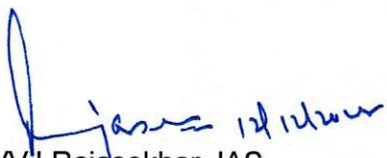
NOTICE REGARDING ANSWER KEY CHALLENGE
(NON MINISTERIAL TECHNICAL EXAM 2025)

In pursuance to Press release dated 05/12/2025, the Answer Key for Non-Ministerial Technical Exam 2025, conducted from 06/12/2025 to 08/12/2025 was uploaded for challenge w.e.f 08/12/2025 (5:00 PM) to 09/12/2025 (5:00 PM) on APSSB website. The respective Moderation Committees have deliberated and recommended as under:

1	2	3
Sl. No.	Name of Paper	Recommendations
1.	Common Paper	The Challenge with respect to Question No. 14 (Set-B) lacks merit and therefore requires no modification in the answer key.
2.	Paper 1 : Dental Mechanic/Technician	No Challenge filed. Answer key found correct by the Moderation Committee.
3.	Paper 2: Draughtsman Grade-III/Junior Estimator	1. The challenge with respect to question No. 46 (Set-D) lacks merit and therefore requires no modification in the answer key. 2. With respect to challenge of question No. 30 (Set-A) marks may be given to all candidates who have selected options A or C.
4.	Paper 3: Road Safety and Traffic Signages.	1. The challenge with respect to Question No. 29 (Set-A) lacks merit and therefore requires no modification in the answer key. 2. With respect to Question No. 30 (Set-A) grace mark may be given to all candidates, irrespective of their answers. 3. The challenge with respect to Question No. 31 (reg - section 142 of CMVR) lacks merit and therefore requires no modification in the answer key.
5.	Paper 4 : ECG Technician	1. With respect to Question No. 6 (Set-A), A, B & C are correct. 2. With respect to Question No. 27 (Set-A), both B & C are correct. Accordingly, challenge is allowed.
6.	Paper 5: EEG Technician	1. With respect to Question No. 33 (Set-A), the options given to the question asked are more or less near to the correct answer. Hence grace mark to be given.
7.	Paper 6: Field Publicity Assistant	No Challenge filed. Answer key found correct by the Moderation Committee.
8.	Paper 7: Health Assistant	No Challenge filed. Answer key found correct by the Moderation Committee.
9.	Paper 8: Library and Information Science	No Challenge filed. Answer key found correct by the Moderation Committee.

10.	Paper 9: Operation Theatre Technician	No Challenge filed. Answer key found correct by the Moderation Committee.
11.	Paper 10: Pharmacist (Allopathy)	No Challenge filed. Answer key found correct by the Moderation Committee.
12.	Paper 11: Publicity Assistant	No Challenge filed. Answer key found correct by the Moderation Committee.
13.	Paper-12: Radiography Technician	No Challenge filed. Answer key found correct by the Moderation Committee.
14.	Paper 13: Surveying	No Challenge filed. Answer key found correct by the Moderation Committee.

The recommendation of the Moderation Committee for the above-mentioned questions have been accepted by the Board and accordingly provisional result is processed.


YVVJ Rajasekhara, IAS
Secretary-cum-CoE, APSSB

NO. APSSB-13/13/2025

Dated 12th Dec'2025

Copy for information to:

1. The Chairperson, APSSB.
2. The Members, APSSB.
3. The Programmer, APSSB for uploading on the website.
4. Office copy.

Y.V.V.J. Rajasekhara, IAS
Secretary-cum-CoE
A.P Staff Selection Board
Govt. of A.P Itanagar