



Tripura University

Suryamaninagar-799022, Tripura (W)

Name of the Examination

Written Test for the post of Laboratory Attendant

Registration No. _____

Roll No. _____

Date of Birth (in figure) : _____

(in word) _____

Signature of the Candidate _____

Date : _____

Signature of the Superintendent

Signature of the Invigilators

1. Suppose that the ratio of two numbers is 3:5 and their sum is 64, what is the difference between the two numbers?
A) 8 B) 16 C) 24 D) 40

2. If a number is increased by 20% and then decreased by 20% then what is the overall effect on the number?
A) No change B) Decrease by 4%
C) Decrease by 10% D) Decrease by 20%

3. The average of 5 consecutive integers is 14. The highest number is
A) 12 B) 14 C) 16 D) 70

4. A shopkeeper sells an item for Rs.600 at a loss of 25%. The cost price of the item is
A) Rs.150 B) Rs.450 C) Rs.750 D) Rs.800

5. An article has a marked price of Rs. 500. If a discount of 15% is offered, the selling price will be
A) Rs.425 B) Rs.450 C) Rs.475 D) Rs.575

6. What is the area of a sphere with a radius of 7 cm? (Assume $\pi=22/7$)
A) 154 cm^2 B) 44 cm C) 616 cm^2 D) 1437.3 cm^3

7. The ratio of circumference of a circle to its diameter (d) is
A) π B) 2π C) d D) πd

8. If 4 workers can complete a task in 12 days, how many days will 6 workers take to complete the same task (assuming they work at the same rate)
A) 12 days B) 10 days C) 8 days D) 6 days

9. A car travels 40 km in 1 hour and next 20 km in 2 hours. The average speed of the car is

- A) 35 km/h B) 30 km/h C) 25 km/h D) 20 km/h

10. A table shows the population of a town over three consecutive years as follows:

Year	Population
2018	5000
2019	6200
2020	8000

What is the percentage increase in population from 2018 to 2020?

Options:

- A) 24.0% B) 29.0% C) 37.5% D) 60.0%

11. If Rs.1200 yields a simple interest of Rs.360 in 3 years, then the the annual rate of interest will be

- A) 10% B) 30%
C) 90% D) None of the above

12. What is the LCM and HCF of the numbers 6 and 9?

- A) LCM- 3, HCF-18 B) LCM- 18, HCF-3
C) LCM- 3, HCF-54 D) LCM- 54, HCF-3

13. A boat has a speed of 4 km/h in still water. If the river's current is 1 km/h, what will be the average speed of the boat if it first travels 12 km upstream and then come back to same place downstream?

- A) 3.75 km/h B) 4 km/h
C) 4.25 km/h D) None of the above

14. What are the roots of the quadratic equation, $x^2 - 5x + 6 = 0$?

- A) 1 and 6 B) -2 and -3 C) 2 and 3 D) -1 and -6

15. Factorize the polynomial $x^3 - 3x^2 - 4x + 12$
- A) $(x-3)(x-2)(x+2)$ B) $(x+3)(x-2)^2$
C) $(x-3)(x-2)^2$ D) $(x+3)(x-2)(x+2)$
16. What is the x-intercept of the line given by $2x + 3y = 12$?
- A) (12, 0) B) (0, 12) C) (0, 6) D) (6, 0)
17. Find the 9th term of the arithmetic progression: 5, 8, 11, ...
- A) 23 B) 26 C) 29 D) 32
18. The 4th term of the geometric progression with $a=3$ and $r=2$ is
- A) 9 B) 24 C) 11 D) 48
19. A triangle has sides in the ratio 3:4:5. What type of triangle is it?
- A) Equilateral B) Isosceles
C) Right-angled D) Scalene
20. If $\cos\theta = 3/5$ and θ lies in the first quadrant, then what is the value of $\sin\theta$?
- A) $3/5$ B) $4/5$ C) $1/2$ D) 0
21. The mean of 5 numbers is 12. If one number is removed, the mean of the remaining 4 numbers becomes 10. The number that was removed is
- A) 2 B) 8 C) 20 D) 40
22. A single card is drawn from a standard deck of 52 cards. What is the probability that the card drawn is a heart?
- A) $1/2$ B) $1/3$ C) $1/4$ D) $1/13$

23. When three coins are tossed simultaneously, what is the probability of getting exactly two heads?

- A) $1/2$ B) $1/4$ C) $1/8$ D) $3/8$

24. Which of the following equations represents a line parallel to $y = 2x + 4$?

- A) $y = 2x - 4$ B) $y = 3x + 2$
C) $y = x + 2$ D) $y = -2x - 4$

25. The following scores were obtained by 9 students in a test: 45, 90, 44, 56, 79, 56, 67, 89, 68. What is the median score?

- A) 56 B) 66 C) 79 D) 67

26. Which of the following is the SI unit of length?

- A) Centimeter B) Meter
C) Kilometer D) Inch

27. The least count of an instrument is defined as

- A) The maximum value it can accurately measure
B) The difference between successive readings
C) The absolute error in measurement
D) The smallest value it can accurately measure

28. The SI unit of mass is

- A) Gram B) Kilogram
C) Pound D) Ton

29. The length of a 50.0 cm rod is measured in an experiment. The measured value was found to be 49.8 cm. The percentage error in the reading is

- A) 0.4% B) 0.2% C) 2% D) 4%

30. In an experiment to measure the time period of a pendulum, the major source of error generally is
- A) Reaction time of the observer
 - B) Air resistance
 - C) Mass of the bob
 - D) Mass of the string
31. The primary function of a screw gauge is to measure
- A) Temperature
 - B) Angle
 - C) Time intervals
 - D) Thicknesses
32. According to Newton's first law of motion, an object will remain at rest or in uniform motion unless
- A) Its speed is changed
 - B) Its mass changes
 - C) It is acted upon by an unbalanced external force
 - D) It comes in contact with another object
33. Newton's second law of motion is mathematically best expressed as
- A) Force = mass + acceleration
 - B) Force = mass - acceleration
 - C) Force = mass \times acceleration
 - D) Force = mass \div acceleration
34. In a free-fall experiment, ignoring air resistance, the acceleration of a falling body near the earth's surface is approximately
- A) 9.8 m/s^2 upward
 - B) 9.8 m/s^2 downward
 - C) 9.8 km/s^2 downward
 - D) 9.8 km/s^2 upward

35. The law stating that for every action there is an equal and opposite reaction is known as
- A) Newton's Law of gravitation
 - B) Newton's first law of motion
 - C) Third law of thermodynamics
 - D) Newton's third law of motion
36. Which of the following describes a systematic error?
- A) Random fluctuations in readings
 - B) Errors that occur due to human inattention
 - C) A consistent offset in measurements due to faulty equipment
 - D) Variation due to environmental factors
37. The property of matter in which particles are very closely packed together in a fixed volume is characteristic of
- A) Solids
 - B) Liquids
 - C) Gases
 - D) Plasma
38. Which of the following state of matter has a definite volume but no definite shape
- A) Solid
 - B) Liquid
 - C) Gas
 - D) Plasma
39. The gravitational force acting on an object is directly proportional to its
- A) Volume
 - B) Temperature
 - C) Density
 - D) Mass
40. Which laboratory instrument is best suited for measuring the internal diameter of a thin tube with high precision?
- A) Ruler
 - B) Vernier calliper
 - C) Potentiometer
 - D) Screw gauge

41. The time period T of a simple pendulum is related to the length (L) and acceleration due to gravity (g) by the formula
- A) $T = 2\pi \sqrt{L/g}$ B) $T = 2\pi \sqrt{g/L}$
C) $T = \pi \sqrt{g/L}$ D) $T = 2\pi \sqrt{L \times g}$
42. For a projectile motion, if air resistance is taken as zero then the horizontal component of velocity remains constant because
- A) Gravity acts horizontally
B) There is no acceleration in the horizontal direction
C) The vertical and horizontal motions are independent
D) Both B and C
43. Light year is a unit of
- A) Time B) Speed of Light
C) Distance D) None of the above
44. According to the right-hand thumb rule, if the thumb points in the direction of current, the curled fingers indicate the direction of the
- A) Electric field B) Magnetic field
C) Force on the conductor D) Voltage drop
45. Which instrument is commonly used in a laboratory to measure the strength of a magnetic field?
- A) Ammeter B) Voltmeter
C) Gaussmeter D) Barometer
46. The law of reflection states that the angle of reflection is equal to
- A) Angle of Refraction B) Angle of Diffraction
C) Angle of Incidence D) Critical Angle

47. Which type of mirror always forms a virtual, upright, and diminished image?
- A) Convex mirror B) Concave mirror
 C) Plane mirror D) None of the above
48. Which type of lens is used to correct hypermetropia (farsightedness)?
- A) Convex lens B) Concave lens
 C) Cylindrical lens D) Plano-concave lens
49. The phenomenon in which light bends as it passes from one medium to another is called
- A) Reflection B) Refraction
 C) Diffraction D) Polarization
50. Which of the following equations correctly relates displacement (s), initial velocity (u), acceleration (a), and time (t) for an object moving with constant acceleration?
- A) $s = (\frac{1}{2})ut + 2at^2$ B) $s = (\frac{1}{2})ut + at^2$
 C) $s = ut - (\frac{1}{2})at^2$ D) $s = ut + (\frac{1}{2})at^2$
51. A car starts from rest and accelerates uniformly at 2 m/s^2 . What is its speed after covering a distance of 25 m?
- A) 10 m/s B) 25 m/s
 C) 50 m/s D) 100 m/s
52. A body is dropped from a height of 20 m. If we take the acceleration due to gravity as 10 m/s^2 , how long does it take for the body to reach the ground?
- A) 1 s B) 2 s
 C) 4 s D) 10 s

53. Which of the following best defines 'work' in physics?
- A) Energy transferred per unit time
 - B) The capacity to do work
 - C) Force applied over a distance regardless of direction
 - D) Product of force applied and the distance travelled in the direction of the force
54. A 50-kg object is lifted vertically through a height of 5 m. Taking the acceleration due to gravity as 10 m/s^2 , what is the work done against gravity?
- A) 250J
 - B) 500 J
 - C) 2500 J
 - D) No work is done
55. Which property of bulk matter describes its ability to return to its original shape after a deforming force is removed?
- A) Ductility
 - B) Malleability
 - C) Plasticity
 - D) Elasticity
56. Which law of thermodynamics introduces the concept of entropy?
- A) Zeroth law
 - B) First law
 - C) Second law
 - D) Third law
57. For an ideal gas undergoing an isothermal expansion at temperature T , which expression correctly represents the work done by the gas? Symbols have usual meaning.
- A) $W = nRT \ln(V_f/V_i)$
 - B) $W = nC_v \Delta T$
 - C) $W = P\Delta V$
 - D) $W = \Delta U$
58. A ray of light strikes a plane mirror at an angle of 35° with the normal. What is the angle between the incident ray and the reflected ray?
- A) 90°
 - B) 70°
 - C) 35°
 - D) 0°

59. Which of the following correctly describes the behaviour of a convex lens when the object is placed beyond its focal point?
- A) It forms a real and inverted image
 - B) It forms a virtual and upright image
 - C) It forms a real and upright image
 - D) It forms a virtual and inverted image
60. Consider the following four physical quantities:
(i) Force, (ii) Speed, (iii) Displacement, (iv) Mass
- Which of the following options correctly classifies these quantities as vector or scalar respectively?
- A) (i) and (ii) are scalar; (iii) and (iv) are vector quantities
 - B) (iii) and (iv) are scalar; (i) and (ii) are vector quantities
 - C) (i) and (iii) are scalar; (ii) and (iv) are vector quantities
 - D) (ii) and (iv) are scalar; (i) and (iii) are vector quantities
61. In a balanced chemical equation, the number of atoms of each element is equal on both sides. This observation is due to the law of
- A) Conservation of mass
 - B) Conservation of energy
 - C) Definite proportions
 - D) Multiple proportions
62. Which of the following is not a chemical reaction?
- A) Burning of paper
 - B) Rusting of iron
 - C) Dissolving sugar in water
 - D) Fermentation of grape juice

63. The process of a chemical reaction where a single compound breaks down into two (or more) simpler substances is called
- A) Combination reaction
 - B) Decomposition reaction
 - C) Displacement reaction
 - D) Double replacement reaction
64. A reaction in which an acid reacts with a base to produce a salt and water is called
- A) Redox reaction
 - B) Combination reaction
 - C) Neutralization reaction
 - D) Precipitation reaction
65. Which of the following is a typical property of acids
- A) Bitter taste
 - B) Slippery feel
 - C) Turns red litmus paper blue
 - D) Turns blue litmus paper red
66. Which salt is commonly known as table salt?
- A) Potassium chloride
 - B) Sodium chloride
 - C) Calcium chloride
 - D) Magnesium chloride
67. Which of the following properties is typical of metals?
- A) Brittle and dull
 - B) Malleable and good conductors of electricity
 - C) Poor conductors of heat but good conductors of electricity
 - D) Soft texture and Low melting points
68. Which of the following metals is found in its native (pure) form in nature?
- A) Iron
 - B) Aluminium
 - C) Zinc
 - D) Gold

69. Which gas is produced when a metal reacts with a dilute acid?
- A) Hydrogen
B) Oxygen
C) Nitrogen
D) Carbon dioxide
70. Which non-metal exists in the liquid state at room temperature?
- A) Mercury
B) Chlorine
C) Bromine
D) Fluorine
71. Which allotrope of carbon is known to conduct electricity?
- A) Diamond
B) Graphite
C) Fullerene
D) Amorphous carbon
72. The simplest hydrocarbon, which is also a major component of natural gas
- A) Ethane
B) Propane
C) Benzene
D) Methane
73. The process by which carbon compounds combine with oxygen to produce energy is called
- A) Photosynthesis
B) Combustion
C) Fermentation
D) Hydrolysis
74. In organic compounds, the bonding between carbon atoms is mainly due to
- A) Ionic bonds
B) Metallic bonds
C) Covalent bonds
D) Hydrogen bonds
75. Which of the following is the correct chemical equation for the reaction between sodium (Na) and chlorine (Cl) to form sodium chloride?
- A) $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$
B) $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$
C) $\text{Na}_2 + \text{Cl}_2 \rightarrow 2\text{NaCl}$
D) $2\text{Na} + 2\text{Cl} \rightarrow 2\text{NaCl}$

76. When magnesium metal reacts with dilute hydrochloric acid, which of the following reactions occurs?
- A) $\text{Mg} + \text{HCl} \rightarrow \text{MgCl} + \text{H}_2$ B) $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$
C) $\text{Mg} + 2\text{HCl} \rightarrow \text{MgH}_2 + \text{Cl}_2$ D) $2\text{Mg} + \text{Cl}_2 \rightarrow 2\text{MgCl}$
77. Which of the following statements is true about non-metals?
- A) They are generally malleable and ductile.
B) They have high melting points and conduct electricity well.
C) They are generally poor conductors of heat and electricity.
D) They are lustrous and shiny in appearance.
78. During a neutralization reaction between an acid and a base, the products formed are
- A) An oxide and water B) A salt and carbon dioxide
C) A salt and water D) A peroxide and water
79. Which experiment provided evidence for the existence of a small, dense, positively charged nucleus?
- A) Thomson's cathode ray experiment
B) Rutherford's gold foil experiment
C) Millikan's oil drop experiment
D) Photoelectric effect
80. The de Broglie hypothesis, which is central to the quantum mechanical model of the atom, states that
- A) Every particle exhibits both wave-like and particle-like properties
B) Electrons can only exist in fixed orbits
C) The nucleus is the center of the atom
D) Electrons are arranged in concentric shells

81. Which quantum number is responsible for determining the shape of an electron's orbital?
- A) Principal quantum number (n)
 - B) Azimuthal quantum number (l)
 - C) Magnetic quantum number (m)
 - D) Spin quantum number (s)
82. Which of the following property generally increases as we move down a group in the periodic table?
- A) Ionization energy
 - B) Electron affinity
 - C) Electronegativity
 - D) Atomic radius
83. Which of the following gas is evolved when calcium carbonate reacts with hydrochloric acid?
- A) Hydrogen
 - B) Oxygen
 - C) Carbon dioxide
 - D) Nitrogen
84. Which indicator is most commonly used to detect the endpoint in a titration experiment involving a strong acid and a strong base?
- A) Phenolphthalein
 - B) Crystal violet
 - C) Bromothymol blue
 - D) Litmus
85. Which lab instrument is designed to accurately measure very small volumes of liquids during experiments?
- A) Beaker
 - B) Flask
 - C) Pipette
 - D) Test tube
86. In demonstrating enzyme activity, starch is often used as a substrate. Which reagent is then added to detect its breakdown?
- A) Benedict's solution
 - B) Methylene blue
 - C) Phenolphthalein
 - D) Iodine solution

87. What is the primary function of a centrifuge in biological experiments?
- A) To measure temperature
 - B) To separate substances based on their density
 - C) To amplify DNA
 - D) To observe cell structures
88. According to the cell theory, which of the following statements is correct?
- A) All organisms are composed of a single cell.
 - B) All cells arise only from pre-existing cells.
 - C) All cells in an organism are identical.
 - D) Cells contain no hereditary information.
89. Which type of microscope is most frequently used to observe microorganisms in a water sample?
- A) Compound microscope
 - B) Electron microscope
 - C) Incubator
 - D) Dissecting microscope
90. Which instrument is most appropriate to measure the absorption of light by pigments during photosynthesis experiments?
- A) Spectrophotometer
 - B) pH meter
 - C) Calorimeter
 - D) Osmometer
91. Which of the following is NOT typically used as a biological staining reagent?
- A) Methylene blue
 - B) Iodine solution
 - C) Gram stain
 - D) Phenolphthalein
92. Which of the following process is described as loss of water from plants?
- A) Transpiration
 - B) Photosynthesis
 - C) Respiration
 - D) Germination

93. Which of the following statements best explains the principle of segregation in heredity?
- A) Alleles for a trait separate during gamete formation
 - B) Alleles are always inherited together
 - C) Genes duplicate during meiosis
 - D) DNA replicates only after fertilization
94. According to the five-kingdom classification system, which kingdom includes multicellular, autotrophic organisms having cell walls made of cellulose?
- A) Monera
 - B) Protista
 - C) Plantae
 - D) Animalia
95. What is the correct order of structural organization in animals from the simplest to the most complex level?
- A) Organ systems, organs, tissues, cells
 - B) Cells, tissues, organs, organ systems
 - C) Tissues, cells, organs, organ systems
 - D) Cells, organs, tissues, organ systems
96. In plants, which tissue is primarily responsible for the transport of water and minerals from the roots to other parts of the plant?
- A) Phloem
 - B) Epidermis
 - C) Xylem
 - D) Cortex
97. Which cellular organelle is the primary site of protein synthesis?
- A) Mitochondrion
 - B) Ribosome
 - C) Golgi apparatus
 - D) Lysosome
98. Which structure contains the genetic material responsible for inheritance in eukaryotic cells?
- A) Cytoplasm
 - B) Mitochondrion
 - C) Ribosome
 - D) Nucleus

99. The term that describes the interaction between organisms and their physical surroundings in a specific area is

A) Biosphere

B) Ecosystem

C) Habitat

D) Community

100. Which enzyme is primarily responsible for the breakdown of proteins in the stomach?

A) Amylase

B) Lipase

C) Pepsin

D) Maltase

Answer Keys for The Post of Laboratory Attendant

Question Number	Answer (Option)
1	B
2	B
3	C
4	D
5	A
6	C
7	A
8	C
9	D
10	D
11	A
12	B
13	A
14	C
15	A
16	D
17	C
18	B
19	C
20	B
21	C
22	C
23	D
24	A
25	D
26	B
27	D
28	B
29	A
30	A
31	D
32	C
33	C
34	B
35	D
36	C
37	A
38	B
39	D
40	B

41	A
42	D
43	C
44	B
45	C
46	C
47	B
48	A
49	B
50	D
51	A
52	B
53	D
54	C
55	D
56	C
57	A
58	B
59	A
60	D
61	A
62	C
63	B
64	C
65	D
66	B
67	B
68	D
69	A
70	C
71	B
72	D
73	B
74	C
75	A
76	B
77	C
78	C
79	B
80	A
81	B
82	D
83	C
84	A
85	C

86	D
87	B
88	B
89	A
90	A
91	D
92	A
93	A
94	C
95	B
96	C
97	B
98	D
99	B
100	C