

अण्डमान तथा निकोबार प्रशासन
ANDAMAN AND NICOBAR ADMINISTRATION
शिक्षा निदेशालय, **DIRECTORATE OF EDUCATION**

Sri Vijaya Puram, Dated the 15th Day of April, 2025

NOTICE

Subject: Publication of Question Paper & Answer Key – Written Test for Promotion to the Post of Laboratory Assistant

The written test for consideration of promotion to the post of Laboratory Assistant in the Department of Education (from the feeder grade) was conducted on Sunday, 13th April 2025.

The question paper along with the answer key is hereby published for reference. Candidates are invited to submit claims or objections pertaining to the answer key, if any.

Submission Guidelines: Submissions will be accepted through both offline and online modes. Submissions must reach by 1500 hours on Thursday, 17th April 2025.

- Offline Submission: To be submitted at the Academic and Recruitment Cell, Directorate of Education. Must be submitted in a sealed envelope addressed to: The Director (Education), Directorate of Education, VIP Road, Sri Vijaya Puram
- Online Submission: To be submitted via email to-
recruitment.anieducation@gmail.com

It may be ensured that the claims/objections are submitted with appropriate justification or documentation, if applicable. Submissions received after the deadline will not be entertained under any circumstances.

Annexures-

- I-** Question Paper of the written test held on 13-04-2025 for consideration of Departmental promotion to the post of Laboratory Assistant in the Department of Education.
- II-** Answer Key of the Question paper mentioned at Sl. No-I

Copy to-

- 1- PA to Director (Education) for kind information to Director (Education) please.
- 2- Recruitment cell for publication on the website.
- 3- Office Notice Board.


Deputy Director Education (PerI)


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SET-C

Section A (Physics)

1. For a total internal reflection
 - A. light travels from rarer to denser medium
 - B. light travels from denser to rarer medium
 - C. light travels in air only
 - D. light travels in water only
2. A body is said to be in equilibrium if all the forces acting on it
 - A. are in the same direction
 - B. are equal in magnitude
 - C. have zero resultant
 - D. can be arranged in pair
3. Which one of the following can also act as a lubricant in the machine?
 - A. iron fillings
 - B. polish on machine
 - C. flow of water through the machine
 - D. flow of compressed and purified air.
4. Nucleons are
 - A. protons and neutrons
 - B. protons and electrons
 - C. neutrons and electrons
 - D. all of these
5. Two identical coaxial coils P and Q carrying equal amount of current in the same direction are brought nearer. The current in
 - A. P increases while in Q decreases
 - B. Q increases while in P decreases
 - C. both P and Q increases
 - D. both P and Q decreases
6. A car is starting from rest is moving with uniform acceleration, if it gains a velocity 36km/hr in 10 seconds then calculate its acceleration.
 - A. 1 m/s^2
 - B. 10 cm/s^2
 - C. 10 m/s^2
 - D. 1 cm/s^2
7. inertia is that property of a body by virtue of which the body
 - A. unable to change by itself the state of rest.
 - B. unable to change by itself the state of uniform motion
 - C. unable to change by itself the direction of motion
 - D. unable to change by itself the state of rest or of uniform motion
8. A constant force acting on a body of mass of 5 kg changes its speed from 5 m/s to 10 m/s in 10 seconds without changing the direction of motion. The force acting on the body is
 - A. 1.5 N
 - B. 2 N
 - C. 2.5 N
 - D. 5 N
9. In parallel combination of n cells we obtain
 - A. more voltage
 - B. more current
 - C. less voltage
 - D. less current

10. If the frequency of human heart is 1.25 Hz, the number of heart beats in 1 minute is
 - A. 65
 - B. 75
 - C. 80
 - D. 90
11. A transverse wave consists of
 - A. only crests
 - B. only troughs
 - C. both crests and troughs
 - D. rarefactions and compressions
12. Find the momentum of a two wheeler of mass 20kg has a velocity of 10 m/s.
 - A. 2000 kg m/s
 - B. 20 kg m/s
 - C. 2000 kg cm/s
 - D. 20000 kg cm/s
13. When a plastic comb is passed through dry hair, the charge acquired by the comb is
 - A. always negative
 - B. always positive
 - C. sometimes negative
 - D. both (a) and (b)
14. Which of the following does not use the application of eddy current.
 - A. electric power meters
 - B. induction furnace
 - C. LED lights
 - D. magnetic brakes in trains
15. In a thermodynamic process, if the volume remains constant, then the process is known as
 - A. isothermal
 - B. isobaric
 - C. isochoric
 - D. adiabatic
16. If the velocity of an object is tripled, if there is no change in mass then the kinetic energy becomes
 - A. 3 times
 - B. 6 times
 - C. 9 times
 - D. 12 times
17. Three resistors 2 ohms, 3 ohms and 5 ohms are connected in parallel. This combination is connected to a battery of emf 20 V and negligible internal resistance. The total current drawn from the battery is
 - A. 10 A
 - B. 15 A
 - C. 19 A
 - D. 23 A
18. Internal energy of an ideal gas depends upon
 - A. temperature only
 - B. volume only
 - C. both volume and temperature
 - D. neither volume nor temperature
19. In simple harmonic motion, at the extreme positions
 - A. kinetic energy is minimum, potential energy is maximum
 - B. kinetic energy is maximum, potential energy is minimum
 - C. both the kinetic and potential energies are maximum
 - D. both the kinetic and potential energies are minimum.

20. A plane electromagnetic wave travels in vacuum along the z – direction. If the frequency of the wave is 40 MHz, then its wavelength is
- 5 m
 - 7.5 m
 - 8.5 m
 - 10 m
21. Which of the following statements is correct?
- in inelastic collisions, both momentum and kinetic energy are conserved
 - in inelastic collisions , momentum is conserved and kinetic energy is not conserved
 - in elastic collisions, momentum is conserved and kinetic energy is not conserved
 - in inelastic collisions , momentum is not conserved and kinetic energy is conserved.
22. The energy to excite an electron in hydrogen atom to its first excited state is
- 8.5 electron volt
 - 10.2 electron volt
 - 12.7 electron volt
 - 13.6 electron volt
23. Which of the following options is true?
- moving electric charges produce magnetic fields
 - the phenomena of generating current or emf by changing magnetic fields is called electromagnetic induction
 - generators, transformers etc works on the principle of electromagnetic induction
 - all of these
24. In a potentiometer of 10 wires, the balance point is obtained on the 7th wire. To shift the balance point to 9th wire we should
- decrease resistance in the main circuit
 - increase resistance in the main circuit
 - decrease resistance in series with the cell whose emf is to be measured
 - increase resistance in series with the cell whose emf is to be determined.
25. When a metal conductor connected to left gap of a meter bridge is heated, the balancing point
- shifts towards right
 - shifts towards left
 - remains unchanged
 - remains at zero
26. The total energy of a simple harmonic oscillator is proportional to
- amplitude
 - square of amplitude
 - frequency
 - velocity
27. At the current amplitude in series LCR circuit is
- maximum
 - minimum
 - zero
 - infinity
28. If a man 30 m toward north and 40 m towards east , then his displacement is
- 30 m
 - 40 m
 - 50 m
 - 60 m

29. How high must the body be lifted to gain an amount of potential energy equal to the kinetic energy it has when moving at a speed of 20 m/s?
- 200 m
 - 2000 cm
 - 20000 cm
 - 2 m
30. In stationary waves, nodes are the points where there is
- minimum displacement and minimum pressure change
 - minimum displacement, and maximum pressure change
 - maximum displacement and maximum pressure change
 - maximum displacement and minimum pressure change
31. Which of the is conserved during elastic collision?
- linear momentum
 - kinetic energy
 - neither linear momentum nor kinetic energy
 - both (a) and (b)
32. In photoelectric effect, the photoelectric current is independent of
- intensity of incident light
 - potential difference applied between the two electrodes
 - the nature of the material
 - frequency of the incident light
33. In a pure capacitive circuit if the frequency of ac source is doubled, then its capacitive reactance will be
- remains same
 - doubled
 - halved
 - zero
34. The self inductance of a long solenoid cannot be increased by
- increasing its area of cross section
 - decreasing its length
 - increasing the current through it
 - increasing the number of turns in it.
35. Young's double slit experiment uses a monochromatic source of light. The shape of interference fringes formed on the screen
- parabola
 - straight line
 - circle
 - hyperbola
36. An engine develops 10kw of power. How much time will it take to lift a mass of 20 kg to a height of 40 m
- 6 seconds
 - 0.8 seconds
 - 10 seconds
 - 8 seconds
37. Two bodies of mass m and $4m$ have equal kinetic energy, then the ratio of their momentum is
- 1 : 2
 - 2 : 1
 - 1 : 4
 - 4 : 1
38. In an unbiased p-n junction, holes diffuse from the p-region to n- region because
- free electrons in the n – region attract them
 - they move across the junction by the potential difference
 - hole concentration in p- region is more as compared to n - region
 - all of these

39. The shape of the curve representing the relation between the speed and kinetic energy of a moving object is
- A. parabola
 - B. ellipse
 - C. straight line with positive slope
 - D. straight line with negative slope
40. Sun energy is due to
- A. fission of hydrogen
 - B. fusion of hydrogen
 - C. both fission and fusion
 - D. neither fusion nor fission

Section – B (Chemistry)

41. Which theory explains the color of coordination compounds based on d-d electronic transitions?
- A. Valence Bond Theory
 - B. Crystal Field Theory
 - C. Werner's Theory
 - D. Molecular Orbital Theory
42. Which halogen has the highest electronegativity?
- A. Fluorine
 - B. Chlorine
 - C. Bromine
 - D. Iodine
43. Which alcohol is commonly used in hand sanitizers?
- A. Methanol
 - B. Ethanol
 - C. Propanol
 - D. Butanol
44. Which of the following ethers is commonly used as an anesthetic?
- A. Methyl ethyl ether
 - B. Diethyl ether
 - C. Diphenyl ether
 - D. Methyl tert-butyl ether
45. What is the trend of atomic radius across a period in the periodic table?
- A. Increases from left to right
 - B. Decreases from left to right
 - C. Remains the same
 - D. Increases and then decreases
46. Which reagent is used for the acid-catalyzed dehydration of alcohols to form ethers?
- A. Acetic acid
 - B. H_2SO_4
 - C. KMnO_4
 - D. ZnCl_2
47. Which of the following statements about isomerism is correct?
- A. Isomers have different molecular formulas
 - B. Isomers have the same molecular formula but different structures
 - C. Isomers always have different functional groups
 - D. Isomers are only found in inorganic compounds
48. Which of the following acids is the strongest?
- A. Acetic acid
 - B. Formic acid
 - C. Benzoic acid
 - D. Propionic acid

49. Which reagent is commonly used in the hydration of alkynes to form ketones?
- $\text{H}_2\text{SO}_4 + \text{HgSO}_4$
 - NaOH
 - KMnO_4
 - ZnCl_2
50. Which thermodynamic quantity is a measure of the total internal energy of a system?
- Enthalpy (H)
 - Entropy (S)
 - Internal energy (U)
 - Gibbs free energy (G)
51. Which of the following is a function of hemoglobin in the body?
- Transport of oxygen
 - Digestion of food
 - Transmission of nerve impulses
 - Blood clotting
52. Which of the following properties is characteristic of transition metals?
- High ionization energy
 - Formation of colored compounds
 - Poor conductivity
 - Low melting points
53. Which of the following factors does NOT affect the rate of a reaction?
- Temperature
 - Concentration of reactants
 - Catalyst
 - Volume of the reaction vessel
54. Which of the following is a bio-coordination compound responsible for oxygen transport in the human body?
- Chlorophyll
 - Hemoglobin
 - Vitamin B12
 - Myoglobin
55. The reaction of carboxylic acids with alcohols in the presence of an acid catalyst forms:
- | | |
|------------|--------------|
| A. Esters | B. Aldehydes |
| C. Ketones | D. Amides |
56. Which of the following methods is used to prepare alcohols from alkenes?
- Reduction
 - Hydrolysis
 - Hydration
 - Dehydration
57. Which of the following compounds exhibits geometrical (cis-trans) isomerism?
- Butane
 - 2-Butene
 - Methanol
 - Ethane
58. Who proposed the concept of primary and secondary valence in coordination compounds?
- Alfred Werner
 - Linus Pauling
 - Gilbert N. Lewis
 - John Dalton
59. Which of the following radioactive isotopes is used in medical imaging (PET scans)?
- Carbon-14
 - Fluorine-18
 - Radon-222
 - Thorium-232

60. Which of the following statements about ethers is incorrect?
 - A) They have a low boiling point compared to alcohols of similar molecular weight
 - B) They are generally unreactive
 - C) They can form hydrogen bonds among themselves
 - D) They are good solvents for non-polar compounds
61. Which of the following solids is an example of a covalent (network) solid?
 - A) NaCl
 - B) Diamond
 - C) Copper
 - D) Ice
62. Which form of phosphorus is the most reactive?
 - A) White phosphorus
 - B) Red phosphorus
 - C) Black phosphorus
 - D) Violet phosphorus
63. Which groups in the periodic table constitute the p-block elements?
 - A) Groups 1 to 8
 - B) Groups 3 to 12
 - C) Groups 13 to 18
 - D) Groups 1 and 2
64. Which transition series includes elements from Sc to Zn?
 - A) 3d series
 - B) 4d series
 - C) 5d series
 - D) 6d series
65. Which of the following is commonly used as a food preservative?
 - A) Sodium benzoate
 - B) Nitric acid
 - C) Ethanol
 - D) Calcium carbonate
66. Which of the following statements about catalysts is true?
 - A) A catalyst increases the activation energy of a reaction
 - B) A catalyst provides an alternative reaction pathway with lower activation energy
 - C) A catalyst is consumed in the reaction
 - D) A catalyst alters the equilibrium constant of a reaction
67. Williamson ether synthesis involves the reaction of an alkoxide ion with:
 - A) Alkene
 - B) Alkyl halide
 - C) Carboxylic acid
 - D) Ketone
68. Which compound is used as a blue dye in textiles?
 - A) Indigo
 - B) Blue dart
 - C) Phenolphthalein
 - D) Alizarin
69. Le Chatelier's principle states that when a system at equilibrium is disturbed, the system will adjust itself to:
 - A) Increase the concentration of reactants
 - B) Oppose the disturbance and restore equilibrium
 - C) Decrease the temperature
 - D) Stop the reaction completely
70. What type of reaction occurs in the Hell-Volhard-Zelinsky reaction?
 - A) Addition
 - B) Substitution
 - C) Hydrolysis
 - D) Oxidation

SECTION C (Biology)

71. Select the option which correctly satisfies the same relationship.
Stomata: Transpiration :: Hydathode: _____.
- Guttation
 - Root pressure
 - Bleeding
 - Oozing
72. Which of the following are found in extreme saline conditions?
- Eubacteria
 - Cyanobacteria
 - Mycobacteria
 - Archaeobacteria
73. In purple and green bacteria, oxygen is not evolved during photosynthesis because hydrogen donor is
- H_2O
 - H_2S
 - NH_3
 - CH_4
74. Agar-agar is commercially obtained from
- green algae
 - blue-green algae
 - brown algae
 - red algae
75. Mitotic apparatus is formed of
- Centrosomes and phragmoplast
 - Two asters with spindle fibres
 - Single asters with phragmoplast
 - spindle fibres only
76. As we go from species to kingdom in a taxonomic hierarchy, the number of common characteristics
- will decrease
 - will increase
 - remain same
 - may increase or decrease
77. Pseudostratified epithelium is found in
- Rectum
 - Urinary bladder
 - Wall of oesophagus
 - Inner lining of bronchiole
78. Which structural level enables the proteins to function as enzymes?
- Primary
 - Secondary
 - Tertiary
 - Quaternary
79. Match column I with column II and select the correct option from the given codes.

	COLUMN I		COLUMN II
a.	Thorns	(i)	Vegetative propagation
b.	Phylloclade	(ii)	Defensive mechanism
c.	Runners	(iii)	Mechanical support
d.	Stilt roots	(iv)	Absorption of nutrition
e.	Hauatoria	(v)	Photosynthesis

- a-(v), b-(iv), c-(iii), d-(ii), e-(i)
- a-(ii), b-(v), c-(iii), d-(i), e-(iv)
- a-(ii), b-(v), c-(i), d-(iii), e-(iv)
- a-(iii), b-(v), c-(iv), d-(i), e-(ii)

80. Isogamous condition with non-flagellated gametes is found in
 - A. *Volvox*
 - B. *Fucus*
 - C. *Chlamydomonas*
 - D. *Spirogyra*
81. Which of the following is true for nucleolus?
 - A. larger nucleoli are present in dividing cells.
 - B. It is a membrane bound structure.
 - C. It takes part in spindle formation.
 - D. It is a site for active ribosomal RNA synthesis.
82. Which of the following is responsible for peat formation
 - A. *Marchantia*
 - B. *Riccia*
 - C. *Funaria*
 - D. *Sphagnum*
83. Which one of the following is a correct statement?
 - A. Pteridophyte gametophyte has a protonemal and leafy stage.
 - B. In gymnosperms, the female gametophyte is free living.
 - C. Antheridiophores and archegoniophores are present in pteridophyte.
 - D. Origin of seed habit can be traced in pteridophytes.
84. Which of the following is an energy dependent process?

A. Facilitated diffusion	B. active transport
C. endosmosis	D. exosmosis
85. Gemma cups are multicellular green structure for vegetative propagation. These are found inside gemma cups in

A. <i>Riccia</i> capsule	B. <i>Marchantia</i> thallus
C. <i>Funaria</i> protonema	D. <i>Polytrichum</i> thallus
86. Grafted kidney may be rejected in a patient due to
 - A) Innate immune response
 - B) Humoral immune response
 - C) Cell-mediated immune response
 - D) Passive immune response
87. The binomial nomenclature system was developed by:
 - A) Carolus Linnaeus
 - B) Charles Darwin
 - C) Jean-Baptiste Lamarck
 - D) Gregor Mendel
88. In human females, meiosis-II is not completed until?

A) birth	B) puberty
C) fertilization	D) uterine implantation
89. A pleiotropic gene :
 - A) controls multiple traits in an individual
 - B) is expressed only in primitive plants
 - C) is a gene evolved during Pliocene
 - D) controls a trait only in combination with another gene
90. Which of the following is the correct function of the cytoskeleton?
 - A) Protein synthesis
 - B) Cell shape and movement
 - C) Genetic material storage
 - D) Photosynthesis

91. Which one of the following is not applicable to RNA?
 A) Chargaff's rule
 B) Complementary base pairing
 C) 5' phosphoryl and 3' hydroxyl ends
 D) Heterocyclic nitrogenous bases
92. Human urine is usually acidic because :
 A) hydrogen ions are actively secreted into the filtrate.
 B) the sodium transporter exchanges one hydrogen ion for each sodium ion, in peritubular capillaries.
 C) excreted plasma proteins are acidic
 D) potassium and sodium exchange generates acidity
93. Identify the cells whose secretion protects the lining of gastro-intestinal tract from various enzymes :-
 A) Chief Cells
 B) Goblet Cells
 C) Oxyntic Cells
 D) Duodenal Cells
94. Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as
 A) Plastidome
 B) Polyhedral bodies
 C) Polysome
 D) Nucleosome
95. Select the incorrect match :
 A) Submetacentric – L-shaped chromosomes
 B) Allosomes – Sex chromosomes
 C) Lampbrush – Diplotene bivalents chromosomes
 D) Polytene – Oocytes of amphibians chromosomes
96. Match the following and select the correct option :
 (a) Earthworm (i) Pioneer species
 (b) Succession (ii) Detritivore
 (c) Ecosystem service (iii) Natality
 (d) Population growth (iv) Pollination
- | | | | |
|----------|------|-------|-------|
| (a) | (b) | (c) | (d) |
| A) (i) | (ii) | (iii) | (iv) |
| B) (iv) | (i) | (iii) | (ii) |
| C) (iii) | (ii) | (iv) | (i) |
| D) (ii) | (i) | (iv) | (iii) |
97. In photosynthesis, the light-independent reactions take place at :
 A) Stromal matrix
 B) Thylakoid lumen
 C) Photosystem – I
 D) Photosystem-II
98. Which of the following features of genetic code does allow bacteria to produce human insulin by recombinant DNA technology?
 A) Genetic code is not ambiguous
 B) Genetic code is redundant
 C) Genetic code is nearly universal
 D) Genetic code is specific
99. Geitonogamy involves
 A) Fertilization of a flower by the pollen from another flower of the same plant.
 B) Fertilization of a flower by the pollen from the same flower
 C) Fertilization of a flower by the pollen from a flower of another plant in the same population
 D) Fertilization of a flower by the pollen from a flower of another plant belonging to a distant population
100. Drug called 'Heroin' is synthesized by :
 A) methylation of morphine
 B) acetylation of morphine
 C) glycosylation of morphine
 D) nitration of morphine

SET C

MCQ ANSWERS

SECTION A PHYSICS		SECTION B CHEMISTRY		SECTION C BIOLOGY	
Q.NO	ANS	Q.NO	ANS	Q.NO	ANS
1	B	41	B	71	A
2	C	42	A	72	D
3	D	43	B	73	B
4	A	44	B	74	D
5	D	45	B	75	B
6	A	46	B	76	A
7	D	47	B	77	D
8	C	48	B	78	C
9	B	49	A	79	C
10	B	50	C	80	D
11	C	51	A	81	D
12	B	52	B	82	D
13	A	53	D	83	D
14	C	54	B	84	B
15	C	55	A	85	B
16	C	56	B	86	C
17	C	57	B	87	A
18	A	58	A	88	C
19	A	59	B	89	A
20	B	60	C	90	B
21	A	61	B	91	A
22	B	62	A	92	A.
23	D	63	C	93	B
24	B	64	A	94	. C
25	A	65	A	95	D
26	B	66	B	96	D
27	A	67	B	97	A
28	C	68	A	98	C
29	A	69	B	99	A
30	B	70	B	100	B
31	D				
32	D				
33	C				
34	C				
35	B				
36	B				
37	A				
38	D				

39	A				
40	B				