Q. B. Series: **B**

Q. B. Number: **244110**

# CET for B.Sc. Nursing /B.Sc. Paramedical /B.Sc. Technology Courses-2024

## QUESTION BOOKLET

**INSTRUCTIONS**

Maximum Time Allowed: 3 Hours
Negative Marking: 0.25 Marks

No. of Questions: 180
Maximum Marks :180

**Roll Number:** _____ **Answer Sheet Number:** _____

1) **Check the Booklet thoroughly**: In case of any defect Misprint, Missing question(s), Missing page, Blank page, Damaged or Defaced page, or duplication of question(s) / Page(s), get the Booklet changed with the Booklet of the same series from the Room Invigilator. No complaint shall be entertained after the Entrance Test is over.

2) Write your Roll Number and the OMR Answer Sheet Number on the Question Booklet.

3) Mark carefully your Roll Number, Question Booklet Number and Question Booklet Series on the OMR Answer Sheet and sign at the appropriate place. Candidates shall be personally responsible for any mistake committed in making these entries in the OMR Answer Sheet. Board shall under no circumstances be responsible for any such mistake.

4) Strictly follow the instructions given by the Centre Supervisor / Room Invigilator and those given on the Question Booklet.

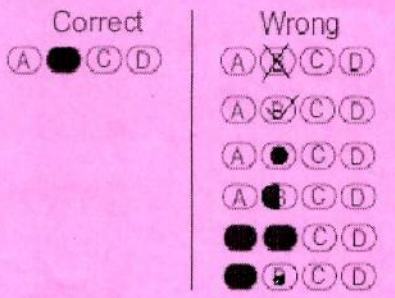
5) Candidates are not allowed to carry any papers, notes, books, calculators, cellular phones, scanning devices, pagers etc. to the Examination Hall. Any candidate found using, or in possession of, such unauthorized material or indulging in copying or impersonation or adopting unfair means / reporting late / without Admit Card will be debarred from the Entrance Test.

6) Please mark the right responses on the OMR Sheet with ONLY a Blue/Black ball point pen. Use of eraser, whitener (fluid) and cutting on the OMR Answer Sheet is NOT allowed.

7) The test is of objective type, containing multiple choice questions (MCQs). Each objective question is followed by four responses. You are required to choose the correct/best response and mark your response on the OMR Answer Sheet and NOT on the Question Booklet.

8) There will be negative marking of 0.25 marks for every wrong answer.

9) For marking response to a question, completely darken the CIRCLE so that the alphabet inside the CIRCLE is not visible. Darken only ONE circle for each question. If you darken more than one circle, it will be treated as a wrong answer. The CORRECT and the WRONG method of darkening the CIRCLE on the OMR Answer Sheet are shown below.




10) Please be careful while marking the response to questions. The response once marked cannot be changed and if done shall be treated as a wrong answer.

11) In view of the limited time, do NOT waste your time on a question which you find difficult during the test.

12) DO NOT make any stray or faint mark anywhere in or around the oval on the OMR Answer Sheet. It will be read as double shading and will make answer invalid. DO NOT fold or wrinkle the OMR Answer Sheet.

13) Rough work MUST NOT be done on the OMR Answer Sheet. Use rough page of your Question Booklet for this purpose.

14) Candidates are provided carbonless OMR Answer Sheet, having original copy and candidate's copy. After completing the examination, candidates are directed to fold at perforation on the top of the sheet, tear it to separate original copy and candidate's copy and then hand over the original copy of OMR Answer Sheet to the Room Invigilator and retain candidate's copy.

**DO NOT OPEN THE SEAL OF THIS BOOKLET UNTIL TOLD TO DO SO**



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# PHYSICS

Q1. A junction or a point where two or more network elements intersect is called:
a) node b) branch
c) loop d) mesh

Q2. Which instrument is used as the null difference in the wheatstone bridge?
a) galvanometer b) voltmeter
c) ammeter d) multi meter

Q3. If the flow of electric current is parallel to the magnetic field, the force will be _____
a) Half of the original value
b) Maximum
c) Infinite
d) Zero

Q4. Which of the following cannot be computed Using Biot Savart law?
a) Magnetic field intensity
b) Magnetic field density
c) Permeable
d) Electric field intensity

Q5. Calculate the magnetic field intensity (tesla) due to a toroid of 50 turns, 2A current and a radius of 159mm.
a) 50 b) 75
c) 200 d) 100

Q6. The material with magnetic susceptibility negative and small are called as_____
a) Diamagnetic b) Paramagnetic
c) Ferromagnetic d) None of the above

Q7. Identify the diamagnetic material
a) Silicon b) Germinium
c) Silver d) Cobalt

Q8. Which among the following is true about Faraday's law of Induction?
a) An emf is induced in a conductor when it cuts the magnetic flux
b) An emf is induced in a conductor when it moves parallel to the magnetic field
c) An emf is induced in a conductor when it moves perpendicular to the magnetic field
d) An emf is induced in a conductor when it is just entering a magnetic field

Q9. Which of the following is found using Lenz's law?
a) Induced emf
b) Induced current
c) The direction of induced emf
d) The direction of alternating current

Q10. If the frequency of the AC source in a series LCR-circuit is increased, how does the current in the circuit change?
a) Decreases then increase
b) Increases then decrease
c) Becomes zero
d) Remains constant

Q11.The Electromotive force (EMF) developed by the generator depends upon
a) Area of rotating wire
b) length of rotating wire
c) Radius of wire
d) size of magnet

Q12. Find the true statement.
a) Displacement current and conduction current are never equal
b) The current that flows through connection wires is called conduction current
c) During charging of the capacitor, in the connection wires, conduction current is discontinuous and displacement current is continuous
d) During charging of the capacitor, in the gap between the capacitor plates, conduction current is continuous and displacement current is discontinuous

Q13. Is the ratio of frequencies of UV rays and IR rays in the glass more than, less than or equal to1?
a) Insufficient data b) Equal to 1
c) Less than 1 d) More than 1

Q14. X-Rays are not used in _____
a) Photographic film b) Photocells
c) Geiger tubes d) Ionization Chamber

Q15. Which of the following statements is true for total internal reflection?
a) Light travels from rarer medium to denser medium
b) Light travels from denser medium to rarer medium
c) Light travels in water only
d) Light travels in the air only



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Q16. Farad is the unit of _____
a) Luminosity b) Wavelength
c) Permittivity d) Inertia

Q17. The smallest value which is measured using an instrument is known as _____
a) Absolute count b) Least count
c) Round off value d) Minimum count

Q18. For the motion with uniform velocity, the slope of velocity- time graph is equal to_____
a) 1m/s b) zero
c) initial velocity d) final velocity

Q19. A coin and a bag full of rocks are thrown in a gravity less environment with the same initial speed. Which one of the following statement is true about the situation?
a) both will travel with same speed
b) the bag will travel faster
c) the coin will travel faster
d) bag will not move

Q20. The angular velocity of a body moving with a constant speed 'V' in a circle of radius 'r' is given by:
a) $V^2/r$ b) Vr
c) $\frac{V}{r}$ d) $\frac{r}{V}$

Q21. Inertia of motion of a body depends on_____
a) mass b) velocity
c) volume d) acceleration

Q22. The centrifugal force always acts _____
a) towards the centre
b) in tangential direction
c) away from the centre
d) outside of the plane of motion

Q23. According to the work energy theorem, total charge in the energy is equal to the _____
a) half of the total work done
b) total work done added with frictional losses
c) square of the total work done
d) total work done

Q24. A stone tied with a string is rotated in a vertical circle. The minimum speed with which the string has to be rotated_____
a) is independent of the length of the stone
b) decreases with increasing mass of the stone
c) decreases with increasing length of the string
d) is independent of the mass of the stone

Q25. The tendency of rotation of the body along any axis is also called:
a) torque b) moment of inertia
c) moment of couple d) force

Q26. In which direction should the force be applied to balance a force in the direction of North-East direction?
a) South b) West
c) North -East d) South-West

Q27. The value of acceleration due to gravity of earth at the equator is less than that of the poles due to _____
a) shape and rotation of the earth
b) mass of the sun
c) mass of the earth
d) mass of the moon

Q28. A player throws a ball upwards with an initial speed of 29.4m/s. What is the direction of acceleration during the upwards motion of the ball?
a) Upwards
b) Diagonal
c) Projectile motion
d) Vertically downwards

Q29. A lap joint is always in _____ shear:
a) single b) double
c) both a and b d) none of the above

Q30. The point when the fluid comes to rest is called as _____
a) stagnation point b) rest point
c) viscous point d) boundary layer point

Q31. A man stands in front of a mirror of special shape. He finds that his image has a very small head, a fat body, and legs of normal size. What can we say about the shapes of the three parts of the mirror?
a) Convex, Concave, Plane
b) The plane, Concave, Convex
c) Concave, Convex, Plane
d) Convex, Plane, Concave

Q32. How much intensity of the image is increased if the diameter of the objective of a telescope is doubled?
a) Two times b) Four times
c) Eight times d) Sixteen times



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Q33. Which among the following is a portion of a transparent refracting medium bound by one spherical surface and the other plane surface?
a) Concave mirror b) Plane mirror
c) Lens d) Prism

Q34. X is thicker in the middle than at the edges, whereas, Y is thicker at the edges than in the middle. Identify 'X' and 'Y'.
a) X = concave lens; Y = convex lens
b) X = convex lens; Y = concave lens
c) X = plane lens; Y = convex lens
d) X = concave lens; Y = plane lens

Q35. The speed of yellow light in a certain liquid is $2.4 \times 10^8$ m/s. Find the refractive index of the liquid.
a) 1.25 b) 5.55
c) 6.25 d) 12.25

Q36. In Young's Double Slit Experiment, if instead of monochromatic light white light is used, what would be the observation?
a) The pattern will not be visible
b) The shape of the pattern will change from hyperbolic to circular
c) Colored fringes will be observed with a white bright fringe at the center
d) The bright and dark fringes will change position

Q37. If the frequency of the incident radiation is equal to the threshold frequency, what will be the value of the stopping potential?
a) 0 b) Infinite
c) 180 V d) 1220 V

Q38. During Einstein's Photoelectric Experiment, what changes are observed when the frequency of the incident radiation is increased?
a) The value of saturation current increases
b) No effect
c) The value of stopping potential increases
d) The value of stopping potential decreases

Q39. Which of the following did Bohr use to explain his theory?
a) Conservation of linear momentum
b) The quantization of angular momentum
c) Conservation of quantum frequency
d) Conservation of mass

Q40. What is the mass of hydrogen in terms of amu?
a) 1.0020 amu b) 1.0180 amu
c) 1.0070 amu d) 1.0080 amu

Q41. The basic theorem/principle used to obtain mass-energy relation is _____
a) Heisenberg's Uncertainty Principle
b) Work-Energy Theorem
c) Momentum Conservation Theorem
d) Maxwell Theorem

Q42. The manifestation of the band structure in solids is due to which of the following?
a) Heisenberg's uncertainty principle
b) Pauli's exclusion principle
c) Bohr's correspondence principle
d) Boltzmann's law

Q43. The band gap between the valence band and conduction band is the measure of _____
a) The conductivity of the material
b) The resistivity of the material
c) Charge density
d) Ease of ionization

Q44. If the positive terminal of the battery is connected to the anode of the diode, then it is known as:
a) Forward biased b) Reverse biased
c) Equilibrium d) Schottky barrier

Q45. When voltage is applied across cathode to anode then it is said to be _____ biased.
a) Reverse b) Forward
c) Cyclic d) Backward

Q46. Zeroth law of thermodynamics helped in the creation of which scale?
a) heat energy b) pressure
c) internal energy d) temperature

Q47. The first law of thermodynamics states that energy cannot be _____
a) created only
b) created nor destroyed
c) destroyed only
d) converted

Q48. Second law of thermodynamics gives the definition of_____
a) Entropy b) Pressure
c) Enthalpy d) Internal energy



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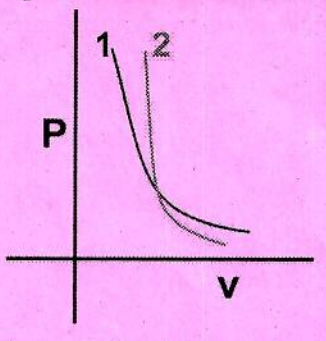
Q49. In the given diagram, one graph is of an ideal gas and another is of a real gas. Select the correct option.




a) 1-real gas, 2-ideal gas
b) 1-ideal gas, 2-real gas
c) Both are for an ideal gas at different temperatures
d) Their graphs cannot intersect

Q50. How many particles are present in one mole of any substance?
a) $6.022 \times 10^{22}$ b) $6.022 \times 10^{23}$
c) $6.022 \times 10^{21}$ d) $6.022 \times 10^{24}$

Q51. A simple pendulum of length l and with a bob whose mass is m is moving along a circular arc of angle θ in a vertical plane. A sphere of mass m is placed at the end of the circle. What momentum will be given to the sphere by the moving bob?
a) Infinity b) Constant
c) Unity d) Zero

Q52. A particle is undergoing SHM with amplitude 10cm. The maximum speed it achieves is 1m/s. Find the time it takes to reach from the mean position to half the amplitude.
a) π/60 s b) π/30 s
c) π/15 s d) π/40 s

Q53. Electromagnetic waves are considered to be which of the following types?
a) Transverse
b) Longitudinal
c) Both Transverse & Longitudinal
d) Neither longitudinal nor transverse

Q54. Which of the following is not true regarding standing wave?
a) In a standing wave the energy moves towards the power source
b) In a standing wave power loss occurs
c) Standing waves do not affect signal strength
d) Standing waves are not desirable

Q55. _____ gives the information on field strength, direction and nature of the charge:
a) electric current b) electric field
c) electric flux d) electric potential

Q56. Two charges $q_1$ and $q_2$ exert some amount of force on each other. What will happen to the force on $q_1$ if another charge $q_2$ is brought close to them?
a) the force will decrease
b) the force will increase
c) the force will remain same
d) the force may increase or decrease

Q57. The direction of electric field created by a negative charge is_____
a) direct outward
b) may be outward or towards
c) circular shape
d) direct towards the charge

Q58. The electrostatic potential on the perpendicular bisector due to an electric dipole is_____
a) 1 b) infinite
c) zero d) negative

Q59. The drift velocity does not depend upon_____
a) The cross-section of the wire
b) The length of the wire
c) The number of free electrons
d) The magnitude of the electric field

Q60. Which one of the following is the practical unit of power?
a) horse power b) watt
c) kilowatt d) kilojoule

## CHEMISTRY

Q61. Select the correct IUPAC name of neopentane.
a) 3, 3-dimethylpropane
b) 1, 2-dimethylpropane
c) 2, 3-dimethylpropane
d) 2, 2-dimethylpropane

Q62. Hyperconjugation involves the delocalisation of _____.
a) σ bond orbital
b) π bond orbital
c) Both σ and π bond orbital
d) None of the mentioned



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Q63. Which of the following is not true about nucleophile?
a) donates an electron pair to an electrophile to form a chemical bond
b) all molecules or ions with a free pair of electrons or at least one pi bond can act as nucleophiles
c) nucleophile are Lewis acids by definition
d) a nucleophile becomes attracted to a full or partial positive charge

Q64. What is the correct order of magnetic strength among the following elements?
a) Fe>Co>Ni>Cu b) Fe>Ni>Co>Cu
c) Cu>Ni>Co>Fe d) Cu>Fe>Ni>Co

Q65. When potassium dichromate crystals are heated with conc. HCl
a) $O_2$ is evolved
b) Chromyl chloride vapours are evolved
c) $Cl_2$ is evolved
d) No reaction takes place

Q66. Which of the following is not a consequence of lanthanide contraction?
a) From $La^{+3}$ to $Lu^{+3}$, the ionic radii changes from 106 pm to 85 pm
b) As the size of the lanthanide ions decreases the basic strength increases
c) The basic character of oxides and hydroxides decreases with increase in atomic number
d) The atomic radii of 4d and 5d series is similar

Q67. Which is the most stable oxidation state of actinides?
a) +2 b) +3
c) +4 d) +5

Q68. Alkanes undergo halogenation. It is an example of
a) nucleophilic substitution
b) elimination
c) free-radical substitution
d) electrophilic substitution

Q69. Addition reaction of hydrogen Bromide to the unsymmetrical alkene follows_____.
a) anti markovnikov's rule
b) markovnikov's rule
c) kharish effect
d) peroxide effect

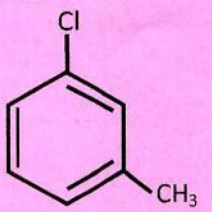
Q70. Alkynes show_____ reactions.
a) neither electrophilic nor nucleophilic addition
b) nucleophilic addition only
c) electrophilic only
d) Both electrophilic and nucleophilic addition.

Q71. Alkylbenzene is formed when benzene is treated with an alkyl halide in the presence of anhydrous aluminum chloride. Identify the type of reaction.
a) Halogenation
b) Friedel-Crafts acylation reaction
c) Friedel-Crafts alkylation reaction
d) Sulphonation

Q72. What is the IUPAC name for the compound $(CH_3)\ CCH_2Cl$?
a) 1-Chloro-2,2-dimethylpropane
b) 1-Chloro-2,2,2-trimethylethane
c) 2-Chloromethyl-2-methylpropane
d) 2,2-Dimethly-1-Bromopropane

Q73. A haloalkane is known to have an $S_N2$ reaction rate 30 times faster than that of ethyl bromide. Identify the haloalkane.
a) Methyl bromide b) Isopropyl bromide
c) tert-Butyl bromide d) neo-Pentyl bromide

Q74. Which of the following is not the correct IUPAC name for the compound shown?




a) 1-Chloro-3-methylbenzene
b) 3-Chloromethylbenzene
c) 3-Chlorotoluene
d) m-Chlorotoluene

Q75. What is the reason for iodoform to be used as an antiseptic?
a) Due to its unpleasant odour
b) Due to its melting point
c) Due to its solubility in alcohol
d) Due to the liberation of free iodine

Q76. 1.0g of an oxide of A contained 0.5g of A.4.0g of another oxide of A contained 1.6g of A. The data indicate the law of
a) Reciprocal proportions
b) Constant proportions
c) Conservation of energy
d) Multiple proportions



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Q77._____is the sum of atomic masses of the elements present in a molecule.
a) Average atomic mass
b) Atomic mass
c) Gram formula mass
d) Molecular mass

Q78. Why was Rutherford's atomic model unstable?
a) Electrons do not remain in orbit.
b) Nuclei will break down.
c) The nucleus repels electrons.
d) Orbiting electrons radiate energy.

Q79. All four quantum numbers cannot be the same for any two electrons in an atom. This principle is known as:
a) Aufbau principle
b) Hund's Rule
c) Pauli's Exclusion principle
d) None of the above

Q80. At dynamic equilibrium the concentration of both the reactants and products are_____.
a) equal
b) not equal
c) cannot predict
d) sometimes equal sometimes not equal

Q81. Le Chatelier Principle is applicable to
a) heterogeneous reaction
b) homogeneous reaction
c) irreversible reaction
d) system in equilibrium

Q82. Buffer solutions resist any change in pH. This is because_____.
a) acids and alkalis in these solutions are shielded from attack by other ions
b) these give unionised acid or base on reaction with added acid or alkali
c) fixed value of pH
d) large excess of $H^+$ or $OH^-$ ions

Q83. In a saturated solution of an electrolyte, the ionic product of their concentration is constant at a constant temperature, and this constant for electrolyte is known as
a) Ionic product b) Solubility product
c) Ionization constant d) Dissociation constant

Q84. Which of the following is not a direct factor affecting the rate of a reaction?
a) Temperature b) Presence of catalyst
c) Order of reaction d) Molecularity

Q85. Who put forward the collision theory of chemical reactions?
a) Trautz and Lewis b) Luigi Galvani
c) Henry Cavendish d) Alessandro Volta

Q86. The law stating that the relative lowering of vapour pressure is equal to the mole fraction of a solute in the solution is known as
a) Henry's law b) Van't Hoff Law
c) Raoult's law d) Ostwald's dilution law

Q87. If $\alpha$ is the degree of dissociation of $Na_2SO_4$ the Van't Hoff factor (i) used for calculating the molecular mass is
a) $1+\alpha$ b) $1-\alpha$
c) $1+2\alpha$ d) $1-2\alpha$

Q88. First law of thermodynamics is based on?
a) Conservation of energy
b) Conservation of mass
c) Conservation of momentum
d) Conservation of work

Q89. Hess's law states that the total amount of heat evolved or absorbed is independent of _____.
a) The nature of the initial reactants
b) The nature of the final products
c) The path taken
d) All of the above

Q90. What is Bond enthalpy?
a) It is a particular state of species at specified conditions
b) When a system is in contact with an outside thermal reservoir, the change will occur slowly
c) It is the average of enthalpies required to dissociate the bond
d) A reaction which forms a single compound from its constituent elements

Q91. Dehydration of alcohol is an example of
a) addition reaction b) elimination reaction
c) substitution reaction d) redox reaction

Q92. Which of the following alcohols is the most reactive towards esterification reaction?
a) $CH_3OH$ b) $CH_3CH_2OH$
c) $(CH_3)_2CHOH$ d) $(CH_3)_3COH$

Q93. When phenol is treated with excess of bromine water, it gives which of the following product?
a) m-bromophenol b) o-and p-bromophenol
c) 2,4-dibromophenol d) 2,4,6-tribromophenol



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Q94. The Williamson ether synthesis produces ethers by reacting
a) alcohol with a metal
b) alkoxide with a metal
c) alkoxide with an alkyl halide
d) alkyl halide with an aldehyde

Q95. Identify the correct IUPAC name of $CH_3$-CH=CH-CHO.
a) But-2-enal b) 2-Butenal
c) Buten-2-al d) Butenal

Q96. What type of reaction takes place upon treatment of a ketone with HCN to form a cyanohydrin?
a) Nucleophilic addition
b) Nucleophilic substitution
c) Electrophilic addition
d) Electrophilic substitution

Q97. What is the correct IUPAC name of the compound $CH_3CH=CHCH=CHCOOH$?
a) Hexenedioc acid
b) Hexa-2,4-dienoic acid
c) Penta-1,3-dienioc acid
d) Pentenedioc acid

Q98. The acid with the lowest pKa value is:
a) $CH_3COOH$ b) $CH_3CH_2COOH$
c) HCOOH d) $(CH_3)_2COOH$

Q99. What is the correct order of reactivity of the following alkyl halides towards ammonolysis reaction?
a) $CH_3I > CH_3Br > CH_3Cl$
b) $CH_3I > CH_3Cl > CH_3Br$
c) $CH_3Cl > CH_3Br > CH_3I$
d) $CH_3Br > CH_3Cl > CH_3I$

Q100. The IUPAC name of $CH_2CN$-CHCN $CH_2CN$ is
a) 1,2,3-tricyanopropane
b) 3-cyanopentene-1,5-nitrile
c) Propane-1,2,3-tricarbonitrile
d) 1,2,3-Propane trinitrile

Q101. Which of the following can be produced by Gatterman reaction of diazonium salts?
a) Bromobenzene b) Fluorobenzene
c) Nitrobenzene d) Cyanobenzene

Q102.Class of carbohydrate which cannot be hydrolyzed further, is known as?
a) Disaccharides b) Polysaccharides
c) Proteoglycan d) Monosaccharide

Q103. Peptide bond is a_____.
a) Covalent bond b) Ionic bond
c) Metallic bond d) Hydrogen bond

Q104. Nucleic acids are a polymer of nucleotide monomeric units. Each nucleotide consists of
a) base-sugar-OH
b) sugar-phosphate
c) base-sugar-phosphate
d) base-phosphate

Q105. Which of the following vitamin deficiency causes Beriberi?
a) Vitamin B1 b) Vitamin B2
c) Vitamin B6 d) Vitamin B12

Q106. Spontaneous reactions that occur or mostly _____in nature.
a) endothermic
b) exothermic
c) both endothermic and exothermic
d) neither exothermic nor endothermic

Q107. The total of the oxidation number in an element is
a) charge b) volatility
c) reduction d) oxidation

Q108. Kohlrausch's law states that at
a) Infinite dilution, the equivalent conductivity of an electrolyte is equivalent to the sum of the conductances of the cations and anions
b) Finite dilution, the equivalent conductivity of an electrolyte is equivalent to the sum of the conductances of the cations and anions.
c) Both (a) and (b)
d) None of the above

Q109. What is the relation between Gibbs free energy and the EMF of the cell?
a) $\Delta G = -nFE_{cell}$ b) $G = -nFE_{cell}$
c) $\Delta G = -nE_{cell}$ d) $\Delta G = -nF_{cell}$

Q110. The period's number corresponds to the highest:
a) Azimuthal quantum number
b) Spin quantum number
c) Magnetic quantum number
d) Principal quantum number

Q111. What is the correct order of electronegativity among the following options?
a) Li<Na<K<Rb<Cs b) Li<K<Na<Rb<Cs
c) Li>Na>K>Cs>Rb d) Li>Na>K=Rb>Cs



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Q112. Factors governing the formation of an ionic bond are_____.
a) low ionization energy of metal and high electron affinity of non-metal atom
b) high ionization energy of metal and high electron affinity of non-metal atom
c) low ionization energy of metal atom and low electron affinity of non-metal atom
d) high ionization energy of metal and low electron affinity of non-metal atom

Q113. In $BrF_3$, lone pairs are present at the equatorial positions. This is to minimise
a) bp-bp repulsion only
b) lp-lp repulsion only
c) lp-bp repulsion only
d) Both (b) and (c)

Q114. What type of hybridization does a $BCl_3$, molecule undergo?
a) sp b) $sp^2$
c) $sp^3$ d) $sp^3d$

Q115. What's the bond order of Oxygen?
a) 3 b) 2
c) 1 d) 0

Q116. IUPAC name for $K_2[PdCl_4]$.
a) Potassium tetrachlorinepalladium(II)
b) Potassium tetrachloridopalladate(II)
c) Potassium tetrachloridopalladium(II)
d) tetrachlorinepalladate (II) Potassium

Q117. What was the term proposed by Werner for the number of groups bound directly to the metal ion in a coordination complex?
a) Primary valence b) Secondary valence
c) Oxidation number d) Polyhedra

Q118. Identify the correct relation between $\Delta_o$ and $\Delta_t$, where $\Delta_o$ denotes crystal field splitting in octahedral complexes and $\Delta_t$ denotes crystal field splitting in tetrahedral complexes.
a) $\Delta_o < \Delta_t$ b) $\Delta_o > \Delta_t$
c) $\Delta_o = \Delta_t$ d) $\Delta_o \geq \Delta_t$

Q119. Which of the following compounds can show optical isomerism?
a) trans-$[Co(en)_2Cl_2]Br$
b) $[Co(en)_3]Cl_3$
c) trans-$[Co(NH_3)Cl_2]Cl$
d) $[Co(NH_3)_5Cl]Cl_2$

Q120. What is the basis for the process of distillation?
a) Difference in melting point
b) Difference in temperature
c) Difference in pressure
d) Difference in boiling point

# BIOLOGY

Q121. Which type of respiration is found in frog?
a) Cutaneous and pulmonary respiration
b) Cutaneous respiration
c) Pulmonary respiration
d) None of the above

Q122. Carbohydrates are classified into:
a) Monosaccharides and disaccharides
b) Disaccharides and polysaccharides
c) Polysaccharides and monosaccharides
d) Monosaccharides, disaccharides and polysaccharides

Q123. Protein is made of:
a) Amino acids b) Fats
c) Starch d) None of the above

Q124. Nuclear acids are macromolecules made up of:
a) DNA b) RNA
c) Nucleotides d) None of the above

Q125. An enzyme is:
a) A chemical substance (biological catalyst) and is almost always a protein
b) A hormone
c) A metabolite
d) None of the above

Q126. Who proposed cell theory?
a) Johansson
b) Mendel
c) Thomas brown
d) Schleiden and Schwann

Q127. Prokaryotes are:
a) Single celled organisms
b) Single celled organisms having no nucleus and other membranes
c) Multicellular organisms
d) None of the above

Q128. Cells wall is present in:
a) Animal cells
b) Both animal and plant cells
c) Plant cells
d) None of the above



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Q129. Plastids are:
a) Double membrane organelles found in cells of plants and algae
b) Single membrane organelles found in plants
c) Are found in animal cells
d) None of the above

Q130. What is the primary function of mitochondria?
a) Photosynthesis b) Reproduction
c) Division d) To generate energy

Q131. Who discovered lysosomes?
a) George b) Jones
c) Jannesson d) De Duve

Q132. Meiosis in animal cells takes place in:
a) Body cells b) Brain cells
c) Reproductive cells d) None of the above

Q133. Which structure in humans helps to breathe out air?
a) Sternum b) Ribs
c) Diaphragm d) None of the above

Q134. Asthma, Chronic obstructive pulmonary disease (COPD), pulmonary fibrosis and pneumonia are:
a) Respiratory diseases in humans
b) Renal Diseases
c) Skin diseases
d) Digestive disorders

Q135. Blood groups in humans are:
a) A, B, AB, O b) A, B, O
c) AB, O d) A, B

Q136. Taxonomy is the branch of science which deals with:
a) Naming, describing and classification of living organisms
b) Classification of plants
c) Classification of animals
d) None of the above

Q137. Five kingdom classification was given by:
a) Mendel b) Whittaker
c) George d) Carolus Linnaeus

Q138. Who proposed the concept of binominal nomenclature?
a) Newton b) Aristotle
c) Linnaeus d) Theophrastus

Q139. Monera are:
a) Multicellular organisms
b) Unicellular organisms with true nuclear membrane
c) Unicellular and simple organisms with naked DNA
d) None of the above

Q140. Pteridophytes are types of plants:
a) Without seeds or flowers
b) With seeds or flowers
c) Bear naked seeds
d) None of the above

Q141. What are the 3 main groups of bryophytes?
a) Liverworts, algae and fungi
b) Algae, fungi and bacteria
c) Liverworts, hornworts and mosses
d) None of the above

Q142. What is inflorescence?
a) The process of flowering in plants
b) The floral axis of a plant
c) Vegetative propagation in plants
d) The arrangement of a cluster of flowers on a floral axis of plant

Q143. Plants under Solanaceae are called:
a) Nightshade plants b) C-4 plants
c) C-3 plants d) None of the above

Q144. Plant tissues include:
a) Collenchyma only
b) Sclerenchyma only
c) Ground tissue only
d) Vascular, sclerenchyma, collenchyma and ground tissue

Q145. Vascular tissue in plants is comprised of:
a) Xylem and phloem b) Xylem alone
c) Phloem only d) None of the above

Q146. Dicot plants have:
a) Embryo with a single cotyledon
b) Most of their vascular bundles near the outside edge of the stem
c) An embryo with two cotyledons
d) Scattered vascular bundles

Q147. Which plants possess Kranz anatomy?
a) $C_3$ plants
b) $C_4$ plants
c) Both $C_3$ and $C_4$ plants
d) None of the above



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Q148. Which plants use Calvin cycle for the dark reaction of photosynthesis?
a) $C_4$ plants
b) $C_3$ plants
c) Both $C_3$ and $C_4$ plants
d) None of the above

Q149. Two carbon dioxide acceptors are present in which plants:
a) $C_3$ plants
b) $C_4$ plants
c) Both $C_3$ and $C_4$ plants
d) None of the above

Q150. Photorespiration is absent in which plants:
a) $C_4$ plants
b) $C_3$ plants
c) Both $C_3$ and $C_4$ plants
d) None of the above

Q151. Rh factor is:
a) An inherited protein found on the surface of RBC
b) Protein found on WBC
c) Is protein found in cytoplasm
d) None of the above

Q152. Electrocardiogram (ECG) is a test that records the electrical activity of:
a) Heart b) Lungs
c) Brain d) Kidney

Q153. The excretory products in humans are:
a) Urea
b) Uric Acid
c) Amino Acid, Urea, Uric Acid, Carbon Dioxide, Water and Ammonia
d) Ammonia

Q154. What type of placentation is in a multilocular ovary?
a) Marginal b) Superficial
c) Axile d) Parietal

Q155. Ovary attached to the receptacle of the flower above the other floral whorls is called as:
a) Inferior ovary b) Half inferior ovary
c) Superior ovary d) None of the above

Q156. In flowers where anther and stigma are not exposed are called as:
a) Chasmogamous b) Cleitogamous
c) Both (a) and (b) d) None of the above

Q157. Which is the best example of multiple alleles in humans?
a) Blood groups b) RBC
c) WBC d) None of the above

Q158. Who outlined the process of DNA replication?
a) Watson and Crick b) Davson
c) Richardson d) Thomas Brown

Q159. Sewage treatment is:
a) A type of wastewater treatment
b) A type of aeration process
c) Both a & b
d) None of the above

Q160. Mutualism is a type of relationship where:
a) Both the organisms are mutually benefitted
b) One is benefitted, another is harmed
c) Both are harmed
d) None of the above

Q161. Which one of these is a sex linked disease?
a) Haemophilia b) Down syndrome
c) Turners syndrome d) None of the above

Q162. Modern synthetic theory of evolution was proposed by:
a) Darwin b) Lamark
c) Huxley d) None of the above

Q163. HIV (Human Immunodeficiency Virus) attacks:
a) Hearts b) Skin
c) Lungs d) Immune system

Q164. Filariasis is a parasitic infection caused by parasitic round worms. It causes:
a) Lymphatic Filariasis (Elephantiasis)
b) Fever
c) Weakening of muscles
d) None of these

Q165. Malaria is caused by:
a) Plasmodium b) Entamoeba
c) Taenia d) Ascaris

Q166. Auxins promote:
a) Cell growth and elongation of plants
b) Growth in animals
c) Growth in both animals and plants
d) None of the above

Q167. Cytokinins are a class of hormones in:
a) Plants b) animals
c) fungi d) None of the above



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Q168. Abscissic acid in plants is:
a) Mainly growth hormone
b) called stress hormone
c) Acts as a signal to increase shoot growth under water stress conditions
d) None of the above

Q169. What defines a chordate?
a) Animals with flexible rod supporting their dorsal or back side
b) Animal having notochord, nerve cord, gill slits, post anal tail and endostyle/thyroid gland
c) Having cranium only
d) None of the above

Q170. Which of the following is a non-chordate?
a) Earthworm b) Frog
c) Turtle d) Man

Q171. What is national park?
a) An area set aside by govt. for preservation of the natural environment
b) An area for recreation
c) An area for growing plants
d) None of the above

Q172. Dachigam National Park is located in which region of India?
a) Jammu and Kashmir
b) In Srinagar city of Kashmir
c) In Maharashtra
d) None of the above

Q173. What was the Kishtwar National park established to protect for?
a) Hangul b) Snow Leopards
c) Lion d) None of the above

Q174. Where is Hemis National park found?
a) Jammu b) Delhi
c) Leh d) Goa

Q175. What is meaning of sanctuary?
a) A safe place for plants and animals
b) Safe place for wild animals
c) A recreational area
d) Safe place especially for someone being chased or hunted

Q176. Kazinag National park is located in:
a) Delhi
b) Bombay
c) Baramulla, Kashmir
d) None of the above

Q177. Salim Ali was:
a) Botanist
b) Chemist
c) Most eminent ornithologist
d) None of the above

Q178. Frog belongs to which phylum
a) Annelida b) Mammalia
c) Reptilia d) None of the above

Q179. Alimentary canal in frog is small:
a) Because they are carnivores
b) Because they are herbivores
c) Because they are omnivores
d) None of the above

Q180. Heart in frog has:
a) Two chambers b) Four chambers
c) Three chambers d) None of the above

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