PACE - IIT & MEDICAL

ASSERTION & REASON BOOKLET FOR AIIMS ASPIRANTS

Instructions for choosing options for each question:

In each of the following questions, a statement of **Assertion (A)** is followed by a statement of **Reason (R)** just below it. Of the statements, mark the correct answer as:

(a) Both Assertion and Reason are True, and the Reason is a correct explanation of the Assertion.

(b) Both Assertion and Reason are True, but the Reason is not a correct explanation of the Assertion.

(c) The Assertion is True but the Reason is False.

(d) The Assertion and the Reason both are False.

PHYSICS

1. **A :** Dimensions of pressure and energy density are same.

R : Both have same units in S. I. System.

2. **A :** A person can come down safely with acceleration greater than $g/4$ on a rope whose breaking strength $\frac{3}{4}th$ of his weight.

R : Tension in string decreases when person accelerates downward

3. **A :** Product of 2.78 and 0.9996 is divided by 1.527. The result having 3 significant figures.

R : 2.78 has least number of significant figures i.e., 3.

4. **A :** eV and joule are the SI units of energy used in modern physics and mechanics respectively.

R : Different types of energies require different units in SI.

5. **A :** If the equation $y = x + t$, cannot be true where x, y are distance and t is time.

R : Quantities with different dimensions cannot be added.

6. **A :** The instantaneous velocity does not depend on instantaneous position vector.

R : The instantaneous velocity and average velocity of a particle are always same.

7. **A :** If two particles, moving with constant velocities are to meet, the relative velocity must be along the line joining the two particles.

R : Relative velocity means motion of one particle as viewed from the other.

8. **A :** When a particle moves along a straight line magnitude of its average velocity is equal to its average speed over any time interval.

R : For one dimensional motion displacement and distance both are same.

9. **A :** A particle moving with constant acceleration may traversed on parabolic path

R : A particle's velocity can be perpendicular to the direction of acceleration.

10. **A :** When a body is dropped or thrown horizontally from the same height, it reaches the ground at the same time.

R : They have same acceleration and same initial speed in vertical direction.

11. **A :** For projection angle $\tan^{-1}(4)$, the horizontal range and the maximum height of a projectile are equal.

R : The maximum range of projectile is directly proportional to square of velocity for a given angle of projection and inversely proportional to acceleration due to gravity.

12. **A :** When a particle moves in a circle with a uniform speed, its velocity and acceleration both changes.

R : The centripetal acceleration in circular motion is dependent on angular velocity of the body.

13. **A :** The driver of a moving car sees a wall in front of him. To avoid collision, he should apply brakes rather than taking a turn away from the wall.

R : Friction force is needed to stop the car or taking a turn on a horizontal road.

14. **A :** A bird alights on a stretched wire depressing it slightly. The increase in tension of the wire is more than the weight of the bird.

R : The tension must be more than the weight as it is required to balance weight.

15. **A :** A particle of mass *m* is moving in a circle of radius *r* with angular velocity ω_0. A person of mass *m* is rotating in a circle of radius 2*r* with same angular velocity. The centrifugal force acting on the particle as observed by person is two times the centrifugal force acting on the person from the reference frame of particle.

R : Centrifugal force is a pseudo force

16. **A :** Coefficient of friction can be greater than unity.

R : Force of friction is dependent on normal reaction and ratio of force of friction and normal reaction cannot exceed unity.

17. **A :** A man of mass m, standing on a frictionless surface pushes a wall and acquires a velocity v_0. The work done by the man on the wall is zero.

R : Work done by all the forces is equal to the change in the kinetic energy.

18. **A :** During planetary motion of planets about sun, speed of planet increases as it approach closer to sun.

R : Angular momentum is conserved during planetary motion.

19. **A :** Many solids have a molar heat capacity close to 25 J mol^{-1} K^{-1} at room temperature.

R : The molar heat capacity is the heat capacity per mole.

20. **A :** The work done by the radial force acting on a particle when is doing uniform circular motion is zero.

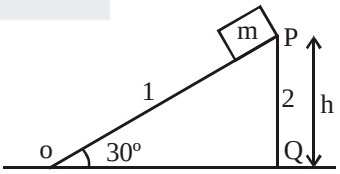
R : No work is done by a force if force is perpendicular to the elementary displacement.

21. **A :** Kinetic energy of a system can be increased without applying any external force on the system.

R : Single external force acting on a particle necessarily changes its kinetic energy.

22. **A :** Work done by gravitation force in reaching the block at O and Q is same.

R : Gravitational force is conservative in nature.



23. **A :** In uniform circular motion of a particle, sum of power delivered to it by all the forces acting on the particle is zero.

R : Dot product of two perpendicular vector is always zero.

24. **A :** If collision occurs between two elastic bodies their kinetic energy decreases during the time of collision.

R : During collision intermolecular space decreases and hence elastic potential energy increases.

25. **A :** The centre of mass and centre of gravity of a body are two different positions in general.

R : The centre of mass and centre of gravity of a body coincide if gravitational field is uniform.

26. **A :** Acitivity of 10^8 undecayed radioactive nuclei of half life 50 days is equal to that of 1.2×10^8 undecayed nuclei of some other material with half life 60 days.

R : Activity is proportional to half life.

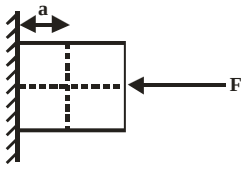
27. **A :** In case of rolling friction force can act in forward and backward direction both.

R : The angular momentum of a system will be conserved only about that point about which external angular impulse is zero.

28. **A :** The mass of a body cannot be considered to be concentrated at the centre of mass of the body for the purpose of computing its moment of inertia.

R : For then the moment of inertia of every body about an axis passing through its centre of mass would be zero.

29. **A :** A horizontal force F is applied such that the block remains stationary because N will produce torque



R : The torque produced by friction force is equal and opposite the torque produce due to normal reaction (N).

30. **A :** Any hollow metallic closed container maintained at a uniform temperature can act as a source of black body radiation.

R : All metals act as black bodies.

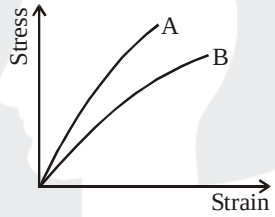
31. **A :** In LCR series circuit. The reasonance occurs at one frequency only.

R : At resonance the inductive reactance is equal to the capacitive reactance.

32. **A :** A needle placed carefully on the surface of water may float, whereas a ball of the same material will always sink.

R : The buoyancy of an object depends both on the material and shape of the object.

33. **A :** The stress–strain graphs are shown in the figure for two materials A and B are shown in figure. Young's modulus of A is greater than of B.



R : The Young's modules for small strain is,

$Y = \frac{\text{stress}}{\text{strain}}$ = slope of linear portion, of graph; and slope of A is more than slope that of B.

34. **A :** In the steady flow of an ideal fluid, the velocity at any point is same for different fluid particles.

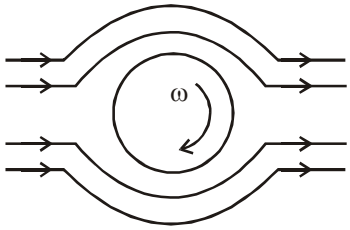
R : Steady fluid flow is the unaccelerated fluid flow.

35. **A :** Steel is more elastic than rubber.

R : When same deformation is produced in two identical bodies of these material greater restoring force develops in the steel body.

36. **A :** As wind flows left to right and a ball is spinned as shown, there will be a lift of the ball.

R : Decrease in velocity of air below the ball, increases the pressure more than that above the ball.



37. **A :** For a given mass of an ideal gas, at constant temperature the product of the pressure and volume is constant.

R : The mean square velocity of the molecule is inversely proportional to their masses at constant temperature.

38. **A :** A block floats in water with some part outside water. When whole system is given a constant upward acceleration then volume of block inside water remains unchanged in equilibrium.

R : Net force on block in both cases is zero.

39. **A :** An ice cube is floating in water in a vessel at 0ºC. When ice cube melts, level of water in the vessel remain same.

R : Volume of melted ice is same as volume of water displaced by ice.

40. **A :** When height of tube is less than liquid rise in the capillary tube, the liquid does not overflow.

R : Product of radius of meniscus and height of liquid in capillary tube always remains constant.

41. **A :** The angle of contact of a liquid decreases with increase in temperature.

R : With increase in temperature, the surface tension of liquid increases.

42. **A :** The stretching of a coil is determined by its shear modulus.

R : Shear modulus change only shape of a body keeping its dimensions unchanged.

43. **A :** γ for a diatomic gas is more than for a monoatomic gas.

R : The molecules of a monoatomic gas have more degrees of freedom than those of a diatomic gas.

44. **A :** The graph between velocity and displacement for a harmonic oscillator is an ellipse.

R : Velocity does not change uniformly with displacement in harmonic motion.

45. **A :** Sound waves cannot be polarized.

R : Polarization can occur only in transverse waves.

46. **A :** Node of pressure wave is formed at the open end of an organ pipe.

R : Due to huge volume of the atmosphere outside the tube, deformation in its volume is negligible.

47. **A :** Radio waves can be polarized.

R : Sound waves are longitudinal waves.

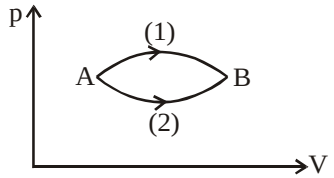
48. **A :** In series LCR circuit, reasonance occurs when inductive reactance is equal to capacitive reactance.

R : At resonance the impedance of the circuit is minimum and the purely resistive.

49. **A :** The steam at 100ºC causes more severe burn to human body than the water at 100ºC.

R : The steam has greater internal energy due to latent heat of vaporization.

50. **A :** A gas is taken from state A to state B through two different paths. Molar specific heat capacity in path (1) is more as compared to (2).



R : $C = \frac{\Delta Q}{n\Delta T}$

$\Delta Q = \Delta U + W$

and W is equal to area under p–V diagram.

51. **A :** Greater is the coefficient of thermal conductivity of a material, smaller is the thermal resistance of a rod of that material.

R : Thermal resistance is the ratio of temperature difference between the ends of the conductor and rate of flow of heat.

52. **A :** In passing through a lens or prism, the phase difference between two waves does not change.
R : The optical path lengths of all rays are same.

53. **A :** When a sound wave in air is reflected from a wall, it does not suffer a phase charge.
R : For sound waves, air is denser as compare to wall.

54. **A :** An air bubble in water shines.
R : When light is incident from water to air, total internal reflection takes place at outer surface of bubble.

55. **A :** A fish inside a pond will see a person standing outside taller than he is actually.
R : Light bend away from the normal as it enters water from air.

56. **A :** In Young's double slit experiment interference pattern disappears when one of the slits is closed.
R : Interference occurs due to superimposition of light wave from two coherent sources.

57. **A :** In Young's double slit experiment if intensity of each source is I_0 these minimum and maximum intensity is zero and $4I_0$ respectively.
R : In Young's double slit experiment energy conservation is not followed.

58. **A :** If a pendulum falls freely, then it time period becomes infinite.
R : Free falling body has acceleration equal to g.

59. **A :** Electrostatic experiments do not work well on humid days.
R : Water is a good conductor of electricity.

60. **A :** Excess charge on a conductor resides entirely on the outer surface.
R : Like charges repel one another.

61. **A :** Sound waves cannot propagate through vaccum but light waves can.
R : Sound waves cannot be polarised but light waves can be.

62. **A :** If three capacitors of capacitance $C_1 < C_2 < C_3$ are connected in parallel then their equivalent capacitance $C_{parallel} > C_{series}$
R : $\frac{1}{C_{parallel}} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$

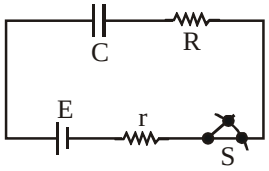
63. **A :** When a capacitor is charged by a battery, both the plates receive charge equal in magnitude, no matter sizes of plates are identical or not.
R : The charge distribution on the plates of capacitor is in accordance with charge conservation principle.

64. **A :** A metallic shield in form of a hollow shell may be built to block an electric field.
R : In a hollow spherical conductor, the electric field inside it is zero at every point.

65. **A :** Kirchhoff's laws cannot be applied in circuits with inductors.
R : Kirchoff's laws cannot be applied in circuits with capacitors.

66. **A :** Lightening conductors are made pointed at the end.
R : An oppsitely charged electric wind starts from the pointed end.

67. **A :** The switch S shown in the figure is closed at t = 0. Initial current flowing through battery is $\frac{E}{R+r}$.



R : Initially capacitor was uncharged, so resistance offered by capacitor at t = 0 is zero.

68. **A :** The internal resistance of a cell depends on the concentration of the electrolyte used in the cell.
R : Dilution increases the ionization of the electrolyte.

69. **A :** When current through a bulb is increased by 2% power increases by 4%.
R : Current passing through the bulb is $\propto \frac{1}{\text{Resistance}}$.

70. **A :** If $\oint \vec{E}.\overline{ds} = 0$ over a closed surface *S*, total electric flux through the surface is zero.

R : The space, where closed surface is placed has zero electric field.

71. **A :** In metre bridge experiment, a high resistance is always connected in series with a galvenometer.

R : As resistance increases, current through the circuit increases.

72. **A :** Magnetic monopoles do not exist.

R : $\oint \vec{B}.d\vec{s} = 0$

Symbols have their usual meanings.

73. **A :** The electric bulb glows immediately when switch is on.

R : The drift velocity of electrons in a metallic wire is very high.

74. **A :** If a proton and an α–particle enter a uniform magnetic field perpendicularly with the same speed, the time period of revolution of α–particle is double than that of proton.

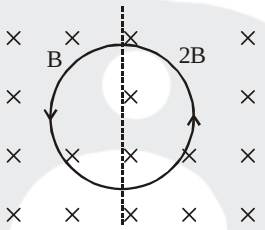
R : In a magnetic field, the period of revolution of a charged particle is directly proportional to the mass of the particles and inversely proportional to charge of particle.

75. **A :** A beam of electron passes undeflected through region $\vec{E}$ & $\vec{B}$.

R : In the region $\vec{E}$ & $\vec{B}$ are perpendicular to each other and the particle is moving perpendicular to both of them.

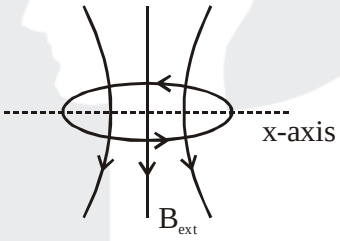
76. **A :** The magnetic force on the closed loop in figure is non-zero.

R : Force (magnetic) on the wire is $\int dF = \int id\vec{\ell} \times \vec{B}$



77. **A :** A closed current carrying loop behave like a magnetic dipole.

R : Force and torque on the loop is zero as shown in figure.



78. **A :** When charges are shared between two bodies, there is no loss of charge, but there is a loss of energy.

R : In case of sharing of charges conservation of energy fails.

79. **A :** In a LC circuit, the charge on the capacitor oscillates simple harmonically.

R : The total energy in a LC circuit is a constant.

80. **A :** For a given mass of an ideal gas, the product of the pressure and volume is constant, at constant temperature.

R : The root-mean square speed of the molecules is inversely proportional to the square root of their mass.

81. **A :** Two identical co–axial circular loops carry equal currents in same direction. When both loops start approaching each other, the current in both coil will decreases.

R : Current in a circuit is independent of any other circuit.

82. **A :** A system cannot have mutual inductance without having self inductance.

R : If mutual inductance of system is zero, its self inductances must be zero.

83. **A :** When an external resistor of resistance *R* (connected across a cell of internal resistance *r*) is varied, power consumed by resistance R is maximum when *R* = *r*.
R : Power consumed by a resistor of constant resistance *R* is maximum when current through it is maximum.

84. **A :** The magnetic field at the ends of a very long current carrying solenoid is half of that at the center.
R : If the solenoid is sufficiently long, the field with in it is uniform.

85. **A :** The direction of induced e.mf. is always such as to oppose the change that causes it.
R : The direction of induced e.m.f. is given by Lenz's Law.

86. **A :** AC source is connected across a circuit. Power dissipated in circuit is P. The power is dissipated only across resistance.
R : Inductor and capacitor will not consume any power in AC circuit.

87. **A :** In series RLC circuit potential drop across inductive reactance will be same as capacitive reactance at resonance.
R : At frequency less than resonance frequency for series RLC nature of circuit will be capacitive, frequency more than resonance nature of overall circuit will be inductive.

88. **A :** Image formed by concave lens is not always virtual.
R : Image formed by a lens is real if the image is formed in the direction of ray of light with respect to the lens.

89. **A :** AC generators are based upon EMI principle.
R : Resistance offered by capacitor for alternating current is zero.

90. **A :** An optical instrument can resolve two point objects only upto its limit of resolution.
R : Due to diffraction effects, image of a point object has an extension.

91. **A :** In a radioactive disintegration an electron may be emitted by the nucleus.
R : Electrons are always present inside the nucleus.

92. **A :** In Rutherford's experiment α-particles from a radium source were allowed to fall on a 10^{-4} mm thick gold foil. Most of α-particles passed straight through the foil.
R : The entire positive charge and nearly whole of the mass of the nucleus is concentrated in the nucleus.

93. **A :** In β–decay, all the emitted electron do not have the same energy.
R : β–decay is not a two body decay process.

94. **A :** In photoelectric effect if both frequency and intensity of light is doubled, saturation current will become four times.
R : Increasing frequency of light will decrease KE of emitted electrons.

95. **A :** If Young's double slit experiment is performed in water, the fringe width will decrease.
R : Wavelength of light in water is smaller than in air.

96. **A :** X-Ray travels with the speed of light.
R : X-Rays are electromagnetic rays

97. **A :** When a nucleus undergoes α–decay the product atom become electrically charged.
R : When a nucleus undergoes β–decay the product atom is electrically neutral.

98. **A :** If the accelerating voltage is doubled; then minimum wavelength of emitted continous X–rays is halved.
R : The wavelength of characteristic X–rays is independent of applied accelerating voltage.

99. **A :** In radioactive decay of a radioactive atom, its stability increases.
R : It is a spontaneous process.

100. **A :** Work function of Aluminum is 4.2 eV. Emission of electron will not be possible if two photons each of energy 2.5 eV strike an electron of Aluminum.

R : For photo-electric emission, the energy of each photon should be greater than the work function of Aluminum.

CHEMISTRY

101. A : Hydrogen has one electron in its orbit but it produces several emission spectrum lines.
R : There are many excited energy levels available.

102. A : The electronic configuration of Cr is [Ar] $3d^4\ 4s^2$
R : Cr is filed according to aufbau principle.

103. A : Fe^{3+} ion has more stable electronic configuration than Fe^{2+} ion in ground state.
R : Fe^{2+} ion has more no. of unpaired electrons than Fe^{3+}

104. A : Radial probability distribution graph of an electron in 4d subshell consist of one radial node.
R : d-subshell of any shell contains radial nodes.

105. A : $\frac{1}{\lambda} = R_H Z^2 \left[\frac{1}{n_1^2} - \frac{1}{n_2^2}\right]$ can be used to determine the wavelength of an electron in an orbit.
R : Wavelength associated with a photon is given by $\lambda = \frac{h}{\sqrt{2mKE}}$

106. A : In the titrations of Na_2CO_3 with HCl using methyl orange indicator, the volume required at the equivalence point is twice that of acid required using phenolphthalein indicator.
R : Two moles of HCl are required for complete neutralization of one mole of Na_2CO_3.

107. A : The percentage of nitrogen in urea is 46.6%.
R : Urea is a covalent compound.

108. A : H_3PO_3 is a dibasic acid and it's salt Na_3PO_3 does not exist.
R : Being dibasic nature, only two H are replaceable.

109. A : Addition of water to a solution containing solute and solvent can not change it's normality or molarity.
R : The milliequivalent and millimoles of the solute are changed on dilution.

110. A : The oxidation state of central sulphur in H_2SO_5 is +6
R : No peroxy linkage is present in H_2SO_5

111. A : The aqueous solution of $CF_3COO^-Na^+$ is more basic than the aqueous solution of $CH_3COO^-Na^+$ for same concentration of salt.
R : The salt derived from weak acid and strong base hydrolyses to generate acidic solution.

112. A : According to principle of common ion effect, the solubility of HgI_2 is expected to be less in an aqueous solution of KI than in water. But HgI_2 dissolves in an aqueous solution of KI to form a clear solution.
R : Iodide ion, I^- is highly polarizable.

113. A : pH of HCl solution is less than that of acetic acid solution of the same concentration.
R : In equimolar solutions, the number of titrable protons present in HCl acid is less than that present in acetic acid.

114. A : On increasing temperature pH of H_2O decreases.
R : At high temperature water become acidic.

115. A : The dissociation constant of polyprotic acid are in the order $K_1 > K_2 > K_3$.
R : The $[H^+]$ furnished in 1^{st} step of dissociation exerts common ion effect to reduce 2^{nd} dissociation and so on.

116. A : A catalyst (positive) decreases energy of activation of the reaction without changing the position of equilibrium.
R : By changing the concentration of any of the reactant or product species, the position of equilibrium may change but equilibrium constant will remain the same provided temperature remains constant.

117. **A :** The equilibrium (given below) attained in a closed vessel remains unaltered by the addition of $CaCO_{3(s)}$.

$$CaCO_{3(s)} \rightleftharpoons CaO_{(s)} + CO_2\uparrow$$

R : The active mass of a solid is a constant independent of its mass and is always taken to be unity.

118. **A :** Addition of inert gas to an equilibrium mixture at constant pressure does not effect the equilibrium.

R : Addition of inert gas at constant pressure decreases the volume of equilibrium mixture.

119. **A :** At an equilibrium $A(g) + 2B(g) \rightleftharpoons C(g)$ if substantial amount of water is added to the mixture and stated that only A(g) gets dissolved to a certain extent in water then equilibrium shifts towards forward direction.

R : On decreasing the volume of reaction mixture and keeping rest of things same the equilibrium shifts to a direction having more number of gaseous molecules.

120. **A :** $\Delta G = \Delta G° + 2.303\ RT \log_{10} Q$, where Q is reaction quotient.

R : Q may be greater or lesser than K otherwise equal to K if $\Delta G = 0$.

121. **A :** HNO_3 acts as oxidizing agent.

R : Oxidation no. of nitrogen is +5, no increase in oxidation no. beyond +5 can occur. The oxidation no. of HNO_3 can only decrease.

122. **A :** The oxidation state of oxygen in F_2O is +2.

R : Electronegativity of F is more than that of oxygen.

123. **A :** Order of reaction is an experimental property and irrespective of the fact whether the reaction is elementary or complicated, it is the sum of the powers of the concentration terms appearing in the rate law i.e. experimentally observed rate law.

R : Order of reaction may change with change in experimental conditions.

124. **A :** If order with respect to species involved in any reaction is equal to the stoichiometric coefficient of that species in the reaction then reaction must be an complex reaction.

R : In a complex reaction the order with respect to species involved is equal to the stoichiometric coefficients.

125. **A :** If in a zero order reaction, the concentration of the reactant is doubled, the half-life period is also doubled.

R : For a zero order reaction, the rate of reaction is independent of initial concentration.

126. **A :** The rate of reaction normally increases by a factor of 2 or 3 for every 10° rise in temperature.

R : By increasing the temperature, activation energy decreases.

127. **A :** For a chemical reaction to occur, there must be collision in between reactant species.

R : All such collisions necessarily convert themselves into product formation

128. **A :** The ratio of σ-bonds and π-bonds in tetracyanomethane is 1.

R : Tetracyanomethane has 8σ and 8π bonds.

129. **A :** Bondlength B-F in BF_3 increases in presence of lewis base.

R : BF_3 can not exhibit back bonding.

130. **A :** BF_3 is a weaker Lewis acid than BCl_3

R : In BF_3 molecule, back bonding ($P_\pi - P_\pi$) is stronger than BCl_3

131. **A :** O_2 is paramagnetic in nature.

R : According to molecular orbital theory, it contains unpaired electrons, so it is paramagnetic.

132. **A :** The order of thermal stability of
$Li_2CO_3 < Na_2CO_3 < K_2CO_3 < Rb_2CO_3 < Cs_2CO_3$

R : As we go along $Li_2CO_3 \longrightarrow Na_2CO_3 \longrightarrow K_2CO_3 \longrightarrow Rb_2CO_3 \longrightarrow Cs_2CO_3$, ionic character of carbonates increases.

133. **A :** The molecular weight of acetic acid determined by depression in freezing point method in benzene and water was found to be different.
R : Water is polar and benzene is non-polar solvent.

134. **A :** Reverse osmosis is used to purify saline water.
R : Solvent molecules pass from concentrated to dilute solution through semipermeable membrane if high pressure is applied on solution.

135. **A :** Surface tension decreases on increasing temperature.
R : Intermolecular attractive forces are comparatively smaller at higher temperature.

136. **A :** Vant Hoff's factor for dissociating electrolytes is always greater than unity.
R : The no. of particles increases in solution due to electrolytic dissociation.

137. **A :** The vapour pressure of 0.45 molar urea solution is more than that of 0.45 molar solution of sugar.
R : Elevation of vapour pressure is directly proportional to the number of species present in the solution.

138. **A :** When $AgCl_{(s)}$ is dissolved in NH_3 solution, then its solubility is greater in comparison to that in water.
R : Ag^+ forms complex with NH_3

139. **A :** A solution of sucrose in water is dextro-rotatory. But on hydrolysis in the presence of a little hydrochloric acid it becomes laevo-rotatory.
R : Sucrose on hydrolysis gives unequal amounts of glucose and fructose. As a result of this, change in sign of rotation is obseverd.

140. **A :** The value of the van der waals' constant 'a' is larger for ammonia than for nitrogen.
R : Hydrogen bonding is present in ammonia.

141. **A :** CO_2 has greater value of rms velocity than CO under similar conditions of temperature and pressure.
R : RMS velocity is directly proportional to molar mass.

142. **A :** Greater the value of van der Waal's constant 'a' greater is the ease of liquification of the gas.
R : 'a' directly measures the magnitude of attractive forces between the molecules.

143. **A :** Due to Frenkel defect, there is no effect on the density of crystalline solid.
R : In Frenkel defect, no cation or anion leaves the crystal.

144. **A :** In CsBr, the limiting radius ratio should lie in between 0.414 – 0.732
R : Coordination numbers of both Cs^+ and Br^- ions are 6

145. **A :** Anion vacancies in alkali halides are produced by heating the alkali halide crystals with alkali metal vapour.
R : Electrons trapped in anion vacancies are referred as F-centres.

146. **A :** The number of atoms in HCP and CCP unit cells are 6 and 4 respectively.
R : HCP makes dense closest packing than CCP.

147. **A :** The no. of tetrahedral voids is twice of the no. of octahedral voids in FCC.
R : Octahedral voids are present at each edge centre and body centre, but tetrahedral voids are present at each face centre.

148. **A :** Hydroxylation of cis-alkene of the type RCH = CHR by alkaline $KMnO_4$ solution (cold and dilute) yields meso product RCH(OH) – CH(OH)R.
R : Hydroxylation by cold and dilute and alkaline solution of $KMnO_4$ is an anti-addition.

149. **A :** Peroxide effect is shown by H – X (where X = F, Cl, Br, I).
R : HCl bond dissociation energy is low and that of H – I is high.

150. **A :** Rate of electrophilic aromatic nitration of C_6H_6, C_6D_6 and C_6T_6 follows the order $C_6H_6 > C_6D_6 > C_6T_6$
R : The cleavage of C–H, C–D and C–T is involved in rate limiting step.

151. **A :** Hydration of alkene using $Hg(OAc)_2/H_2O$ followed by $NaBH_4$ is regioselective.
R : It involves carbocation formation.

152. **A :** $CH_3-CH=CH-O-CH_3 + HCl \longrightarrow CH_3-CH_2-\underset{\displaystyle Cl}{\underset{|}{CH}}-O-CH_3$

R : $CH_3-CH_2-\overset{+}{C}H-O-CH_3$ is more stable than $CH_3-\overset{+}{C}H-CH_2-O-CH_3$.

153. **A :** Chlorination in alkane is less reactive more selective.

R : Bromination in alkane is more reactive less selective.

154. **A** : Bromination of cis-2-butene gives racemic mixture.

R : Bromination to alkene is anti-addition.

155. **A :** Alkenes are more reactive than alkynes towards bromination.

R : Cyclic bromonium ion formed by alkene is more stable than that formed by alkyne.

156. **A :** Among two cations of similar size, the polarising power of cation with pseudo noble gas configuration is larger than cation with noble gas configuration.

R : Polarising power of Ag^+ is more than K^+

157. **A :** A process is said to be adiabatic if the system does not exchange heat with surroundings.

R : It does not involve increase or decrease in temperature of the system.

158. **A :** For a spontaneous process E_{cell} = –ve.

R : $\Delta G = nF\, E_{cell}$

159. **A :** For an isothermal expansion dT = 0.

R : Work done in reversible expansion at constant temperature

$W = -2.303\, nRT \log\left(\frac{P_1}{P_2}\right)$

160. **A :** T, P and V are state variables or state functions.

R : Their values depends on the state of the system and how it is reached.

161. **A :** The heat absorbed during the isothermal expansion of an ideal gas against vacuum is zero.

R : The volume occupied by the molecules of an ideal gas is zero.

162. **A :** In PF_3Cl_2, fluorine occupy axial position and chlorine occupy equatorial position.

R : F is smaller in size than Cl

163. **A :** Mixture of ethanol and cyclohexane shows positive deviation.

R : Cyclohexane breaks the intermolecular H-bonding between ethanol molecules to some extent.

164. **A :** CH_3NH_2 on reaction with chloroform and KOH gives isocyanide.

R : The reaction involve carbocation formation

165. **A :** Although standard oxidation potential of Cl^- ion (–1.36V) is lower than of water (–1.23V) still it is Cl^- which is oxidized to Cl_2 at the anode during electrolysis of an aq. Solution of NaCl.

R : H_2O needs greater voltage for oxidation to O_2 than that needed for oxidation to Cl_2.

166. **A :** Metal-metal ion electrode are different from metal-metal insoluble salt ion electrode.

R : In standard metal-metal ion electrode metal ion conc. = 1 M whereas in standard insoluble salt electrode anion conc. = 1 M.

167. **A :** The equivalent conductance of an electrolyte (whether weak or strong) increases with dilution until a limiting value i.e. $\wedge_0$ or $\wedge_\infty$ is attained.

R : The increase in equivalent conductance of a solution of a weak electrolyte is due to increase in number of ions while for a strong electrolyte it is due to increase in the velocity of ions upon dilution.

168. **A :** 1 Faraday of electricity deposits 1 gm of Ag or Cu or Al.

R : 1 mol of electrons are required to reduce 1 mol Al^{3+}.

169. **A :** In the Daniel cell, if the conc. of Cu^{2+} and Zn^{2+} ions are doubled, the emf of the cell does not change.

R : If the conc. of ions in contact with metal is doubled, the electrode potential will doubled.

170. **A :** Mostly rate of adsorption decreases with increase in temperature.

R : Mostly adsorption processes are exothermic.

171. **A :** Lyophobic solutions are quite stable and cannot be easily coagulated.

R : Lyophilic solution are irreversible whereas lyophobic solution are reversible.

172. **A :** NH_3 absorb more readily over activated charcoal than CO_2.

R : NH_3 is non-polar.

173. **A :** Freundlisch equation shows the relation between $\frac{x}{M}$ (Mass adsorbed per unit mass of adsorbent) and pressure at constant temperature.

R : At high pressure the $\frac{x}{M}$ is independent of pressure.

174. **A :** For adsorption ΔG, ΔH, ΔS all have –ve values.

R : Adsorption is a spontaneous exothermic process in which randomness decreases due to force of attraction between adsorbent and adsorbate.

175. **A :** $CHCl_3$ is more acidic than CHF_3.

R : The conjugate base of $CHCl_3$ is more stable than CHF_3.

176. **A :** The correct acidity order among formic acid (I), acetic acid (II) and benzoic acid (III) is I > III > II.

R : Formic acid is the only acid which gives positive tollen's test.

177. **A :** A ketone may also reduce Fehling's solution and Tollen's reagent if there is an –OH group at α-position w.r.t. each.

R : Fructose reduces Fehling's solution and Tollen's reagent.

178. **A :** Acetic acid does not undergo haloform reaction.

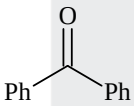
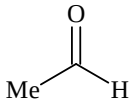
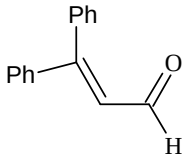
R : Acetic acid has no alpha hydrogen.

179. **A :** Acetophenone and benzophenone can be distinguished by iodoform test.

R : Acetophenone and benzophenone both are carbonyl compounds.

180. **A :** Tertiary alcohol does not form ester with carboxylic acid in the presence of conc. H_2SO_4

R : Tertiary alcohol undergoes dehydration in the presence of conc. H_2SO_4.

181. **A :** A mixture of  and  on treatment with dil. NaOH gives 

R : The ketone is very hindered and very conjugated and so less reactive than aldehyde.

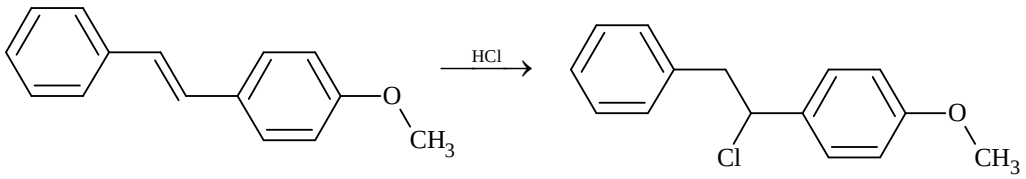
182. **A :** The addition of amines in aldehyde and ketone is carried out in weakly acidic medium.

R : In strong acidic medium amines will be protonated hence the nucleophilic character of amine decrease.

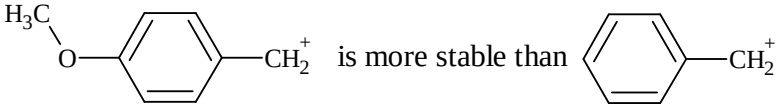
183. **A :** Bromination of phenol in aqueous medium or in CS_2 leads to different products.

R : Phenol in aqueous medium is more activativating towards EAS than it is in CS_2.

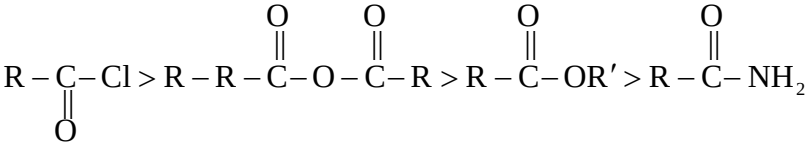
184. **A :** The major product of addition of HCl upon the alkene (I) is II given below.



R : The reaction occurs by carbocationic inter mediate formation and the carbocation.

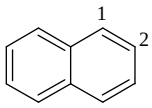


185. **A :** The order of reactivity towards nucleophilic substitution of carboxylic acid derivatives is



R : The order of reactivity is related to the leaving aptitude of the leaving group.

186. **A :** In naphthalene



the electrophilic attack on indicated position 1 is more hindered so less stable intermediate is formed hence it takes place at position 2.

R : The electrophile attacks on the position which gives less stable intermediate.

187. **A :** Pyrrole, is aromatic and undergoes electrophilic aromatic substitution extremely readily and predominant by at position adjacent to nitrogen.

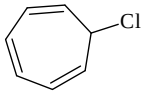
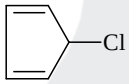
R : Nitrogen in the ring bearing a lone pair in conjugation with π-electrons brings aromaticity to the pyrrole.

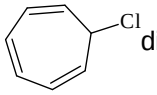
188. **A :** Hydrolysis of  in acid catalysed medium gives $CH_3COOH + C_2H_5{}^{18}OH$

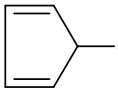
R : Esters on hydrolysis gives alcohol and carboxylic acid.

189. **A :** Aryl halides and vinyl halides are less reactive than alkyl halides and are not easily hydrolysed.

R : Cleavage bond in aryl halides acquire double bond character due to resonance which makes its cleavage difficult.

190. **A :**  dissociates easily whereas  does not dissociate

R :  dissociates produces a highly stable aromatic cycloheptatrienyl carbocation but

 produces very unstable anti aromatic cyclopentadienyl cation on dissocation.

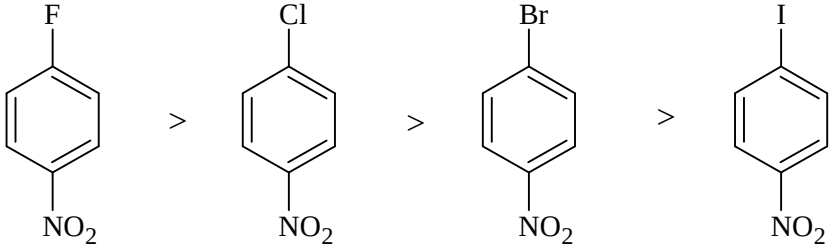
191. **A :** Sulphide ores are concentrated by froth flotation process.

R : Pine oil act as frothing agent in froth flotation process.

192. **A :** A very dilute acidic solution of Cd^{2+} and Ni^{2+} gives yellow ppt of CdS on passing H_2S

R : Solubility product of CdS is more than that of NiS

193. **A :** The order of reactivity of the following compounds, towards nucleophilie substitution reaction



R : Higher the electro negativity of the atom greater will be the stability of the intermediate formed by the attack of the nucleophile at the rate determining step.

194. **A :** Tl^{3+} acts as an oxidizing agent.

R : Due to inert pair effect, Tl^{+} is more stable than Tl^{3+}.

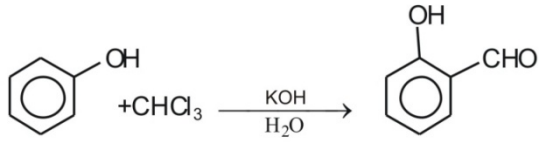
195. **A :** Reaction of 3° R—X with an alkoxide ion at elevated temperature results in elimination exclusively.

R : S_N2 attack of alkoxide ion on 1º R—X results in formation of ether.

196. **A :** The major products formed by heating $C_6H_5CH_2OCH_3$ and HI are $C_6H_5CH_2I$ and CH_3OH.

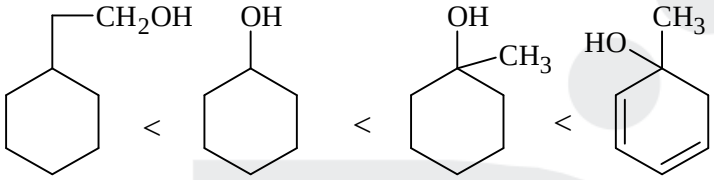
R : Benzyl cation is more stable than methyl cation.

197. **A :**



R : Reaction proceeds by carbanion mechanism.

198. **A** : Ease of dehydration with H_2SO_4 follows the order:



R : More stable the carbocation, easier the dehydration in acidic medium.

199. **A :** $[Co(NH_3)_5Cl]Cl_2$ reacts with excess of $AgNO_3$ solution to give 2 moles of AgCl.

R : Primary valencies are ionisable.

200. **A :** On addition of $FeCl_3$ solution in NH_4SCN solution become deep red colour.

R : Red coloration developed due to formation of $Fe(SCN)_3$ complex.

BIOLOGY

201. **A :** In an organism anabolism and catabolism take place simultaneously.

R : Senescence occurs when there is an increase in the rate of anabolism with respect to catabolism.

202. **A :** The most extensive metabolic diversely is observed in organism having incipient nucleus.

R : Nucleus in multicellular organism inhibits some metabolic diversity.

203. **A :** Inserting alien DNA in pBR322 plasmid at Pst I makes the transformants sensitive to ampicillin antibiotic.

R : Restrictions site for Pst I is present on amp^R.

204. **A :** Dikaryon is observed in Ascomycetes and Basidiomycetes.

R : In some fungi karyogamy is delayed after plasmogamy.

205. **A :** Nitrogenase is sensitive to oxygen hence an anaerobic condition is maintained for efficient nitrogen fixation.

R : High energy inputs for the cell to function demands high rates of aerobic respiration in the Kreb's cycle and hence behaves as an oxygen scavenger

206. **A :** Positive pressure theory is best explanation for translocation in phloem.

R : The net gain of ATP produced during aerobic, anaerobic and HMP are 36, 2, and 35 respectively:

207. **A :** There are three different zones in a biosphere reserve.

R : Limited human activity is allowed in core zone.

208. **A :** Mitochondria, ER are largest organelle in an animal's cell.
R : Mitochondria, Chloroplast are semiautonomous cell organelles.

209. **A :** For recessive autosomal disease both parents are normal and their first son is diseased.
R : Both the parents are heterozygous

210. **A :** DNA polymerase II fills the gap that is left after the removal of RNA primers during DNA replication.
R : In eukaryotes RNA polymerase I transcribesrRNA, hnRNA and t-RNA.

211. **A :** Photorespiration decreases the rate of photosynthesis.
R : RUBISCO can also behave as an oxygenase.

212. **A :** During photophosphorylation light energy is utilized to produce the proton gradient that is required for ATP synthesis
R : Oxidative phosphorylation results as the energy of oxidation-reduction is utilized for phosphorylation.

213. **A :** In place of isolated food chain, food webs are operational in an ecosystem.
R : Absence of any species in an area does not effects the energy flow.

214. **A :** The physical distance between two genes determines the frequency of cross-over.
R : One cross-over reduces the occurrence of another cross-over in its vicinity

215. **A :** In an aquatic ecosystem, pyramid of biomass is inverted.
R : Biomass depends upon the reproductive potential and number of phytoplanktons.

216. **A :** Some athletes take "steroids" in an attempt to enhance their physical performance but not advisable.
R : This can lead to decreased sperm production and even sterility.

217. **A :** Chief photosynthetic pigment is chlorophyll a but plants evolved some other pigments also.
R : Photosynthetic efficiency is increased due to absorptions of variety of wavelengths.

218. **A :** Reproduction cannot be an all-exclusive defining characteristic of living organisms but no non-living object is capable of reproducing or replicating by itself.
R : All living organisms do not reproduce.

219. **A :** Reproduction cannot be an all-exclusive defining characteristic of living organisms but no non-living object is capable of reproducing or replicating by itself.
R : All living organisms do not reproduce.

220. **A :** Cell is the fundamental structural and functional unit of all living organisms.
R : Anything less than a complete structure of a cell does not ensure independent living.

221. **A :** In phase contrast microscope, living cells and tissues can be studied without staining them.
R : Electron beam is used as a source of light in phase contrast microscope.

222. **A :** Molecules of different substances present in a solution are separated by chromatography technique.
R : On the basis of differential movement of components according to size, the separation is done by the process of chromatography.

223. **A :** Viruses are an exception to cell theory.
R : Viruses are noncellular in nature.

224. **A :** In five kingdom system, Whittaker emphasized on reproductive characters of living beings.
R : Reproductive characters show less variations.

225. **A :** Archaebacteria are most resistant to adverse environmental conditions.
R : In archaebacteria, cell wall is highly resistant and complex.

226. **A :** Like mitochondria, the chloroplasts are also double membrane bound. Of the two, the inner chloroplast membrane is relatively less permeable
R : Porins are present on inner membrane.

227. **A :** Water accounts for about 80 to 90% of a plant cell's expansion.
R : Enzymes are active in hydrated medium only.

228. **A :** The life is interesting and most surprised phenomenon of nature.
R : It's reflected by ecological conflict and cooperation among members of a population and among populations of a community or even the molecular traffic inside a cell.

229. **A :** Deoxyribose, $C_5H_{10}O_4$ is not exactly hydrate of carbon.
R : Carbohydrates are hydrates of carbon so compounds which follow $C_x(H_2O)_Y$ formula are carbohydrates.

230. **A :** Both the strands DNA are not copied during transcription.
R : The two RNA molecules if produced simultaneously would be complementary to each other, hence would form a double stranded RNA which would prevent RNA from being translated into protein.

231. **A :** Cell is the fundamental structural and functional unit of all living organisms.
R : Because unicellular organisms can show independent existence and perform all metabolic activities.

232. **A :** Guard cells of stomata are having thick and elastic cell wall.
R : Elastic wall is due to radial arrangement of cellulose microfibrils.

233. **A :** True chromatin is absent in prokaryotes.
R : Mitosis does not occur in prokaryotes.

234. **A :** Cedar wood oil is used as lens material in light compound microscope.
R : Refractive index of cedar wood oil is greater than the refractive index of glass.

235. **A :** Suberization leads to death of cell.
R : Suberin is water resistant material.

236. **A :** Crossing over take place duringpachytenesubstage.
R : It is a process of interchange of chromatid material between chromatid of nonhomologous chromosomes.

237. **A :** Biological concept of species is most accepted explanation about definition of species.
R : Biological concept of species explains the diversity of origin of species.

238. **A :** Ribosomes are known as RNP particles.
R : Ribosomes are made of rRNA and proteins.

239. **A :** Lysosomes are called 'Sicidal bags'.
R : A large number of hydrolytic enzymes are present in lysosomes.

240. **A :** Basal bodies are formed from centrioles.
R : Both basal bodies and centrioles have 9+2 structural organization.

241. **A :** Microtubules are present in eukaryotic cells.
R : Centrioles, basal bodies, flagella, cilia, spindle fibres are formed by microtubules.

242. **A :** Mitochondria is known as power house of cell.
R : ATP production takes place here.

243. **A :** The split gene arrangement represents probably the ancient feature of genome.
R : The process of splicing represents the dominance of RNA world.

244. **A :** Among the two nucleic acid, DNA is a better genetic material.
R : DNA chemically in less reactive and structurally more stable when compared to RNA.

245. **A :** Every biological system resist a change and wants to remain in state of equilibrium.
R : Climax communities of an ecosystem are produced after several changes it has gone through succession.

246. **A :** A farmer is advised to purchase hybrid seeds every year to obtain maximum advantage of heterosis.
R : Heterosis is lost by inbreeding.

247. **A :** Mendel gave postulates like "principles of segregation and principles of independent assortment" after studying seven pairs of contrasting traits in garden pea.
R : He was lucky in selecting seven characters in pea that were located on seven different chromosomes.

248. **A :** Root pressure is dynamic and is always a positive hydrostatic pressure.
R : It is a universal phenomenon and develops under absorption lag.

249. **A :** Most of the species are identified on the basis biological species concept.
R : Interbreeding can be practically used as routine criterion for identification.

250. **A :** Sex organs in fungi are unicellular and nonjacketed.
R : There is no embryo formation in the life cycle of fungi.

251. **A :** When any plane passing through the central axis of the body divides the organism into two identical halves, then the organism is said to be radially symmetrical.
R : Only diploblastic animals can have radial symmetry.

252. **A :** Body surface of Annelids is distinctly marked out into segments or metameres.
R : Metameres are due to presence of longitudinal and circular muscles which help in locomotion.

253. **A :** Roundworms may be free-living, aquatic and terrestrial or parasitic in plants and animals.
R : Roundworms have complete digestive tract with muscular pharynx.

254. **A :** In sponges fertilization is always internal and development is always indirect.
R : In sponges fertilization takes place inside the body and zygote develops into larval stages.

255. **A :** Brittle stars have water vascular system which helps in many day to day activities.
R : Water vascular system is the distinctive feature of spiny bodied organisms.

256. **A :** In frog external fertilization takes place.
R : Frog is an aquatic amphibian

257. **A :** Cyclostomes and cartilaginous fishes are similar in some characteristics.
R : Both are aquatic and possess cartilaginous cranium and vertebral column.

258. **A :** All the polysaccharides are homopolymers.
R : All the polysaccharides contain repeating units of glucose.

259. **A :** Tendons and ligaments are dense regular connective tissue.
R : Dense regular connective tissue contains collagen fibres and fibroblast cells.

260. **A :** Development in cockroach is also termed as paurometabolous development.
R : In cockroach nymphal stage directly changes into adult without moulting.

261. **A :** Rate of glomerular filtration is directly proportional to secretion of renin from juxta-glomerular cells.
R : Renin converts angiotenin-I into angiotenisn II, which causes constriction of efferent arteriole.

262. **A :** Intestinal absorption is always an active process.
R : Absorption of food components always takes place against the concentration gradient.

263. **A :** Ventilation process includes both active and passive mechanisms during inhalation.
R : Respiratory muscle contraction is ATP independent process, while gaseous exchange is a passive process

264. **A :** Human heart is myogenic.
R : Right atrium of human heart has SA node.

265. **A :** Counter current mechanism operates in juxta-medullary nephrons.
R : In juxta-medullary nephrons loop of Henle is present only in cortex region and in close proximity with vasa recta.

266. **A :** In meiosis II division is equational.
R : Homologous chromosomes are separated in anaphase II.

267. **A :** The cristae and maculae are the specific receptors of the vestibular apparatus.
R : Cristae and maculae maintain balance and body posture.

268. **A :** Aldosterone is the main mineralocorticoid of the human body
R : Aldosterone is a type of corticoid which regulates the balance of water and electrolytes.

269. **A :** Recurrent activation of the skeletal muscles results in fatigue.
R : Aerobic breakdown of glycogen in the muscles leads to the accumulation of lactic acid.

270. **A :** The axonal membrane of the neuron during resting stage is more permeable to sodium ions (Na^+) and nearly impermeable to potassium ions (K^+)
R : In resting state neurons does not conduct any impulse, so these don't require ATP to remain in a resting state.

271. **A :** The anatomical setup of lungs in thorax is such that any change in the volume of the thoracic cavity will be reflected in the lungs cavity.
R : The thoracic chamber is formed dorsally by the vertebral column, ventrally by sternum, laterally by the ribs and on the lower side by diaphragm.

272. **A :** Active transport occurs during the transport of various food components.
R : Some of the substances like fructose and some amino acids are absorbed by facilitated transport.

273. **A :** Diabetes insipidus is marked by excessive urination and too much thirst.
R : Anti-Diuretic hormone (ADH) is released from posterior lobe of pituitary gland

274. **A :** In the descending limb of loop of Henle, the urine is hypertonic while in ascending limb of loop of Henle, the urine is hypotonic
R : Descending limb of loop of Henle is permeable to water, and ascending limb is impermeable to salts.

275. **A :** Atrial Natriuretic Factor is released by wall of atria.
R : It inhibits the release of renin from juxtaglomerular apparatus.

276. **A :** Spermiation takes place in epididymis.
R : Sertoli cells remain attached to spermatozoa in epididymis.

277. **A :** Parturition is induced by a complex neuroendocrine mechanism.
R : The signals for parturition originate from fully developed fetus and placenta.

278. **A :** Placenta act as endocrine gland
R : It secretes steroidal hormones to maintain structure of corpus luteum.

279. **A :** Ovulation occurs due to LH surge.
R : LH surge induces completion of meiosis I in primary oocyte.

280. **A :** Seminal plasma lacks spermatozoa.
R : Seminal plasma contains secretions of seminal vesicles only.

281. **A :** Cell mediated immunity induces humoral immunity
R : T cells themselves do not secrete antibodies but help B cells to produce them

282. **A :** Cocaine produces a sense of euphoria.
R : It interferes with the transport of the neurotransmitter dopamine

283. **A :** Bone marrow and thymus gland are primary lymphoid organs
R : Bone marrow and thymus provide the sites for interaction of lymphocytes with the antigen, which proliferate to become effector cells.

284. **A :** Syrnix is a characteristic feature of birds.
R : Syrnix reduces body weight & helps in flights.

285. **A :** Gastrectomy results in pernicious anaemia.
R : There will be deficiency of vitamin B_{12} in the blood.

286. **A :** Bt toxin are protein crystals containing insecticidal protein
R : *B. thuringiensis* forms these protein crystals continuously during their growth period.

287. **A :** DNA ligase plays important role in recombinant DNA technology.
R : The linking of antibiotic resistant gene with plasmid vector became possible by enzyme DNA ligase.

288. **A :** Restriction enzymes belong to a larger class of enzymes called nucleases.
R : Each restriction enzyme recognizes a specific palindromic nucleotide sequence in the DNA

289. **A :** RNA interference takes place in all eukaryotic organisms as a method of cellular defense.
R : This method involves ds RNA which prevent transcriptional process.

290. **A :** Inbreeding increases homozygosity.
R : Inbreeding exposes harmful recessive genes that are eliminated by selection.

291. **A :** The spermatids are transformed into spermatozoa by the process called spermiation.
R : After spermiation, sperm heads become embedded in the Sertoli cells.

292. **A :** Saheli 'once a week' pill has very few side effects and high contraceptive value.
R : Saheli contains a non-steroidal preparation.

293. **A :** AIDS patients suffer from infections due to *Mycobacterium*, viruses, fungi and even parasites like *Toxoplasma*.
R : AIDS causes progressive decrease in the number of helper T-lymphocytes.

294. **A :** A cow is administered hormone with FSH –like activity under the programme called MOET for herd improvement.
R : FSH suppresses follicular maturation and super ovulation.

295. **A :** An alien DNA is linked with the origin of replication for making multiple identical copies.
R : An origin of replication is a specific DNA sequence which is responsible for initiating replication.

296. **A :** When light strikes the retina, potential differences are generated in photoreceptors
R : Light induces dissociation of the retinal from opsin resulting in changes in the structure of the opsin which in turn causes membrane permeability changes.

297. **A :** In the absence of fertilization corpus luteum degenerates in 7 to 10 days
R : Degeneration of corpus luteum is due to non availability of FSH from anterior pituitary.

298. **A :** IgA provides immunity against inhaled and ingested pathogens
R : IgA is secretory antibody and it is present in the lining of respiratory and intestinal tract.

299. **A :** Radial symmetry in animals is advantageous in detecting food and danger.
R : It allows the animal to be able to respond to stimulus from any direction.

300. **A :** Tapeworm, roundworm and pinworm are endoparasites of human intestine.
R : Improperly cooked food is one of the main causes of intestinal infections.

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For answer key of this paper, kindly contact us at :

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ANSWER KEY

PHYSICS				CHEMISTRY				BIOLOGY			
1	(C)	51	(B)	101	(A)	151	(C)	201	(C)	251	(C)
2	(A)	52	(C)	102	(D)	152	(A)	202	(C)	252	(C)
3	(B)	53	(A)	103	(C)	153	(D)	203	(A)	253	(B)
4	(D)	54	(A)	104	(C)	154	(A)	204	(A)	254	(A)
5	(A)	55	(C)	105	(D)	155	(A)	205	(C)	255	(B)
6	(D)	56	(A)	106	(B)	156	(B)	206	(B)	256	(B)
7	(A)	57	(C)	107	(B)	157	(C)	207	(C)	257	(A)
8	(D)	58	(B)	108	(A)	158	(D)	208	(B)	258	(D)
9	(B)	59	(C)	109	(D)	159	(B)	209	(A)	259	(B)
10	(A)	60	(B)	110	(C)	160	(C)	210	(D)	260	(C)
11	(B)	61	(B)	111	(D)	161	(B)	211	(A)	261	(C)
12	(B)	62	(C)	112	(B)	162	(B)	212	(B)	262	(D)
13	(B)	63	(A)	113	(C)	163	(A)	213	(A)	263	(D)
14	(C)	64	(A)	114	(C)	164	(C)	214	(B)	264	(B)
15	(B)	65	(D)	115	(A)	165	(A)	215	(C)	265	(C)
16	(C)	66	(A)	116	(B)	166	(A)	216	(A)	266	(C)
17	(B)	67	(A)	117	(A)	167	(A)	217	(A)	267	(B)
18	(A)	68	(A)	118	(D)	168	(D)	218	(A)	268	(B)
19	(B)	69	(B)	119	(D)	169	(C)	219	(A)	269	(C)
20	(A)	70	(C)	120	(B)	170	(A)	220	(A)	270	(C)
21	(C)	71	(C)	121	(A)	171	(D)	221	(C)	271	(A)
22	(A)	72	(A)	122	(A)	172	(C)	222	(A)	272	(B)
23	(A)	73	(C)	123	(B)	173	(B)	223	(A)	273	(B)
24	(A)	74	(A)	124	(D)	174	(A)	224	(A)	274	(C)
25	(A)	75	(A)	125	(B)	175	(A)	225	(A)	275	(B)
26	(C)	76	(A)	126	(C)	176	(B)	226	(A)	276	(D)
27	(B)	77	(B)	127	(C)	177	(B)	227	(A)	277	(B)
28	(A)	78	(C)	128	(A)	178	(C)	228	(A)	278	(C)
29	(A)	79	(B)	129	(C)	179	(B)	229	(A)	279	(C)
30	(C)	80	(B)	130	(A)	180	(A)	230	(A)	280	(C)
31	(A)	81	(C)	131	(A)	181	(A)	231	(A)	281	(A)
32	(C)	82	(C)	132	(A)	182	(A)	232	(A)	282	(A)
33	(A)	83	(B)	133	(B)	183	(A)	233	(B)	283	(C)
34	(C)	84	(B)	134	(A)	184	(A)	234	(C)	284	(C)
35	(A)	85	(B)	135	(A)	185	(A)	235	(A)	285	(A)
36	(A)	86	(A)	136	(A)	186	(D)	236	(C)	286	(C)
37	(B)	87	(B)	137	(D)	187	(B)	237	(B)	287	(A)
38	(C)	88	(B)	138	(A)	188	(B)	238	(A)	288	(B)
39	(A)	89	(C)	139	(C)	189	(A)	239	(A)	289	(C)
40	(A)	90	(A)	140	(A)	190	(A)	240	(C)	290	(B)
41	(C)	91	(C)	141	(D)	191	(B)	241	(B)	291	(D)
42	(A)	92	(B)	142	(A)	192	(C)	242	(A)	292	(B)
43	(D)	93	(A)	143	(A)	193	(A)	243	(B)	293	(A)
44	(B)	94	(D)	144	(D)	194	(A)	244	(A)	294	(C)
45	(A)	95	(A)	145	(B)	195	(B)	245	(B)	295	(A)
46	(A)	96	(A)	146	(C)	196	(A)	246	(A)	296	(A)
47	(B)	97	(C)	147	(C)	197	(C)	247	(A)	297	(C)
48	(A)	98	(B)	148	(C)	198	(A)	248	(A)	298	(A)
49	(A)	99	(B)	149	(D)	199	(A)	249	(A)	299	(A)
50	(A)	100	(A)	150	(D)	200	(A)	250	(B)	300	(C)