

Ravi Maths Tuition Centre

Time : 180 Mins

T3 1

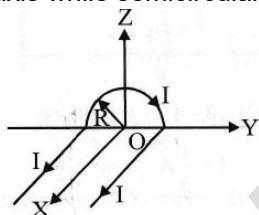
Marks : 752

- In a Carnot cycle, order of process is:
 - isothermal expansion, adiabatic expansion and adiabatic compression
 - isothermal expansion, adiabatic compression and adiabatic expansion
 - adiabatic expansion, isothermal expansion and adiabatic compression
 - none of the above
- If the size of bacteria is 1 micron, what will be the number of it in 1 m length?
 - One hundred
 - One crore
 - One thousand
 - One million
- The period of the moon's rotation around the earth is nearly 29 days. If the moon's mass were 2-fold, its present value and all other things remained unchanged, the period of the moon's rotation would be nearly:
 - $29\sqrt{2}$ days
 - $29/\sqrt{2}$ days
 - 29×2 days
 - $29/2$ days
- The ratio of longest wavelengths corresponding to Lyman and Balmer series in hydrogen spectrum is

- $\frac{3}{23}$
- $\frac{7}{29}$
- $\frac{9}{31}$
- $\frac{5}{27}$

NEET TEST 4/120

- The SI unit of gravitational potential is:
 - J
 - $\text{J}\cdot\text{kg}^{-1}$
 - $\text{J}\cdot\text{kg}$
 - $\text{J}\cdot\text{kg}^{-2}$
- A gaseous mixture consists of 16g of helium and 16g of oxygen. The ratio $\frac{C_p}{C_v}$ of the mixture is
 - 1.59
 - 1.62
 - 1.4
 - 1.54
- The mass of the moon is about 1.2% of the mass of the earth. Compared to the gravitational force the earth exerts on the moon, the gravitational force the moon exerts on the earth:
 - is the same
 - is smaller
 - is greater
 - varies with its phase
- A wire carrying current I has the shape as shown in figure. Linear parts of the wire are very long and parallel to X-axis while semicircular portion of radius R is lying in Y-Z plane. Magnetic field at point O is _____



- $\vec{B} = -\frac{\mu_0}{4\pi} \frac{I}{R} (\pi\hat{i} + 2\hat{k})$
- $\vec{B} = -\frac{\mu_0}{4\pi} \frac{I}{R} (\pi\hat{i} - 2\hat{k})$
- $\vec{B} = -\frac{\mu_0}{4\pi} \frac{I}{R} (\pi\hat{i} + 2\hat{k})$
- $\vec{B} = \frac{\mu_0}{4\pi} \frac{I}{R} (\pi\hat{i} - 2\hat{k})$

- Cubical region of space is filled with some uniform electric and magnetic field. An electron enters the cube across one of its faces with velocity v and a positron enters via opposite face with velocity $-v$. At this instant, which one of the following is not correct?
 - The electric forces on both the particles cause identical acceleration.
 - The magnetic forces on both the particles cause equal acceleration.
 - Both particles gain or lose energy at the same rate.
 - The motion of the centre of mass is determined by B alone.
- Oxygen and hydrogen are at the same temperature T . The ratio of the mean kinetic energy of oxygen molecules to that of the hydrogen molecules will be:

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11. A body is projected with a velocity $\vec{v} = (3\hat{i} + 4\hat{j})$ m/s. The maximum height attained by the body is: ($g = 10\text{m/s}^2$)
 a) 0.8 m b) 8 m c) 80 m d) 800 m
12. Two tuning forks of frequencies 256 and 258 vibrations/sec are sounded together. Then, the time interval between two consecutive maxima heard by an observer is:
 a) 2 sec b) 0.5 sec c) 250 sec d) 252 sec
13. A bar magnet is hung by a thin cotton thread in a uniform horizontal magnetic field and is in equilibrium state. The energy required to rotate it by 60° is W . Now the torque required to keep the magnet in this new position is:
 a) $W/\sqrt{3}$ b) $\sqrt{3}W$ c) $2W/\sqrt{3}$ d) $\frac{\sqrt{3}}{2}W$
14. The angle between two vectors $2\hat{i} + 3\hat{j} + \hat{k}$ and $-3\hat{i} + 6\hat{k}$ is :
 a) 0° b) 45° c) 60° d) 90°
15. When two spheres of equal masses undergo glancing elastic collision with one of them at rest, after collision they will move
 a) opposite to one another b) in the same direction c) together d) at right angle to each other
16. The half-life of radium is 1600yr. The fraction of a sample of radium that would remain after 6400 year.
 a) $\frac{1}{4}$ b) $\frac{1}{2}$ c) $\frac{1}{8}$ d) $\frac{1}{16}$
17. A man is sitting with folded hands on a revolving table. Suddenly, he stretches his arms. Angular speed of the table would:
 a) increase b) decrease c) remain the same d) nothing can be said
18. An LC circuit contains a 40 mH inductor and a 25 μF capacitor. The resistance of the circuit is negligible. The time is measured from the instant the circuit is closed. The energy stored in the circuit is completely magnetic at times (in milliseconds)
 a) 0,3.14,6.28 b) 0,1.57,4.71 c) 1.57,4.71,7.85 d) 1.57,3.14,4.71
19. Which of the following physical quantities has same unit in all the three system of units?
 a) Mass b) Length c) Time d) None of these
20. Two bodies of different masses m_a and m_b are dropped from two different heights a and b. The ratio of the time taken by the two to cover these distances are :
 a) a : b b) b : a c) $\sqrt{a} : \sqrt{b}$ d) $a^2 : b^2$
21. In the relation $V = \frac{\pi p r^4}{8 \eta l}$, where the symbols have their usual meanings, the dimensions of V are
 a) $[M^0L^3T^0]$ b) $[M^0L^3T^{-1}]$ c) $[M^0L^{-3}T]$ d) $[ML^3T^0]$
22. A Carnot engine whose efficiency is 40%, receives heat at 500 K. If the efficiency is to be 50%, the source temperature for the same exhaust temperature is:
 a) 900 K b) 600 K c) 700 K d) 800 K e) 550 K
23. Two trucks, one loaded (A) and the other unloaded (B) are moving and have same kinetic energy. The mass of A is double that of B. Brakes are applied to both and are brought to rest. If distance covered by A before coming to rest is S_1 and that by B is S_2 , then:
 a) $S_1 = S_2$ b) $S_1 = 2S_2$ c) $2S_1 = S_2$ d) $S_1 = 4S_2$
24. A concave mirror of focal length f_1 is placed at a distance of 'd' from a convex lens of focal length ' f_2 '. A beam of light coming from infinity and falling on this convex lensconcave mirror combination returns to infinity. [2012] The distance ' d ' must equal _____
 a) $f_1 + f_2$ b) $-f_1 + f_2$ c) $2f_1 + f_2$ d) $-2f_1 + f_2$
25. Ampere's circuital law is given by
 a) $\oint \vec{H} \cdot d\vec{l} = \mu_0 I_{enc}$ b) $\oint \vec{B} \cdot d\vec{l} = \mu_0 I_{enc}$ c) $\oint \vec{B} \cdot d\vec{l} = \mu_0 J$ d) $\oint \vec{H} \cdot d\vec{l} = \mu_0 J$
26. Match the Column I with Column II.

Column I	Column II
(A) Kepler's first law	(P) $T^2 \propto a^3$

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(B)	Kepler's second law	(q)	Inverse square law
(C)	Kepler's third law	(r)	Orbit of planet is elliptical
(D)	Newton's law of gravitation	(s)	Law of conservation of angular momentum

a) A - s, B - p, C - q, D - r b) A - p, B - q, C - r, D - s c) A - r, B - s, C - p, D - q d) A - s, B - P, C - q, D - s

27. Assertion: An object may fall with a constant velocity.

Reason : This happens when acceleration of the object is equal to acceleration due to gravity.

- a) If both assertion and reason are true and reason is the correct explanation of assertion.
 b) If both assertion and reason are true but reason is not the correct explanation of assertion.
 c) If assertion is true but reason is false. d) If assertion is true but reason is false.

28. A thin rod of length L and mass M is held vertically with one end on the floor and is allowed to fall. Find the velocity of the other end when it hits the floor, assuming that the end on the floor does not slip:

- a) $\sqrt{\frac{3g}{L}}$ b) $\sqrt{3gL}$ c) $\sqrt{\frac{L}{3g}}$ d) $\sqrt{\frac{g}{3L}}$

29. A bullet moving with a velocity of 100 m/s can just penetrate two planks of equal thickness. The number of such planks penetrated by the same bullet, when the velocity is doubled, will be:

- a) 4 b) 6 c) 8 d) 10

30. A body is being raised to a height h from the surface of earth. What is the sign of work done by applied force and gravitational force respectively?

- a) Positive, Positive b) Positive, Negative c) Negative, Positive d) Negative, Negative

31. **Assertion:** One should not use metal containers in a microwave oven.

Reason : Only because metal may melt from heating.

- a) If both assertion and reason are true and reason is the correct explanation of assertion.
 b) If both assertion and reason are true but reason is not the correct explanation of assertion.
 c) If assertion is true but reason is false. d) If both assertion and reason are false.

32. A rupee coin, starting from rest rolls down a distance of 1m on a plane inclined at an angle of 30° with the horizontal. Assuming that $g = 9.81 \text{ m s}^{-2}$, time taken is:

- a) 0.32 s b) 0.48 s c) 0.78 s d) 1.0 s

33. Radio waves diffract around buildings, although light waves do not. The reason is that radio waves

- a) travel with speed larger than c b) have much larger wave length than light
 c) are not electromagnetic waves d) none of these

34. When air is replaced by a dielectric medium of constant K, the maximum force of attraction between two charges separated by a distance

- a) increases K times b) remains unchanged c) decreases K times d) increases K^{-1} times

35. Which of the following energies is conserved for the system?

- a) Kinetic energy b) Potential energy c) Mechanical energy d) None of these

36. If 1 g of steam is mixed with 1g of ice, then the resultant temperature of the mixture is:

- a) 270°C b) 230°C c) 100°C d) 50°C

37. If v_e and v_p denotes the escape velocity from the Earth and another planet having twice the radius and the same mean density as the Earth, then:

- a) $v_e = v_p$ b) $v_e = v_p/2$ c) $v_e = 2v_p$ d) $v_e = v_p/4$

38. A block of mass m and density ρ is hanging from a string. If it is lowered into a vessel of cross-sectional area A containing a liquid of density $\sigma (< \rho)$ and gets fully immersed, the increase in pressure at the bottom of vessel would be

- a) $\frac{m\rho g}{\sigma A}$ b) $\frac{m\sigma g}{\rho A}$ c) $\frac{mg}{A}$ d) zero

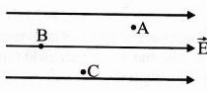
39. A prism has a refracting angle of 60°. When a ray is incident at 50°, it suffers minimum deviation (δ_m) is

- a) 45° b) 60° c) 55° d) 40°

40. (A) The apparent weight of a block of wood floating in water is equal to zero.

(R) The value of acceleration due to gravity (g) in water becomes zero.

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- a) If both assertion and reason are true and reason is the correct explanation of assertion.
 b) If both assertion and reason are true but reason is not the correct explanation of assertion.
 c) If assertion is true but reason is false. d) If both assertion and reason are false.
 e) If assertion is false but reason is true.
41. The distance of a galaxy from the earth is of the order of 1025m. The time taken by light to reach the earth from the galaxy is :
 a) 3×10^{14} s b) 3×10^{16} s c) 3×10^{18} s d) 3×10^{20} s
42. (A) Reversible system are difficult to find in real world.
 (B) Most processes are dissipative in nature.
 a) If both assertion and reason are true and reason is the correct explanation of assertion
 b) If both assertion and reason are true but reason is not the correct explanation of assertion
 c) If assertion is true but reason is false d) If both assertion and reason are false
 e) If assertion is false but reason is true
43. 1 mole of gas expands isothermally at 37° C. The amount of heat is absorbed by it until its volume doubled is (R = $8.31 \text{ J mol}^{-1} \text{ K}^{-1}$)
 a) 411.25 cal b) 418.50 cal c) 420.25 cal d) 425.40 cal
44. Which of the following phenomenon is not explained by Huygen's construction of wavefront?
 a) Refraction b) Reflection c) Diffraction d) Origin of spectra
45. A, B and C are three points in a uniform electric field. The electric potential is
- 
- a) maximum at B b) maximum at C c) same at all the three points A, B and C d) maximum at A
46. If two liquids of same volume but different densities ρ_1 and ρ_2 are mixed, then density of mixture is given by
 a) $\rho = \frac{\rho_1 + \rho_2}{2}$ b) $\rho = \frac{\rho_1 + \rho_2}{2\rho_1\rho_2}$ c) $\rho = \frac{2\rho_1\rho_2}{\rho_1 + \rho_2}$ d) $\rho = \frac{\rho_1\rho_2}{\rho_1 + \rho_2}$
47. In the question number 25, if the mass placed at vertex A is doubled, then the force acting on the mass 2 m placed at the centroid O is :
 a) zero b) $\frac{2Gm^2}{l^2}$ c) $\frac{5Gm^2}{l^2}$ d) $\frac{6Gm^2}{l^2}$
48. The solids which have the negative temperature coefficient of resistance are _____.
 a) insulators and semiconductors b) metals c) insulators only d) semiconductors only
49. A 25 cm long solenoid has radius 2 cm and 500 total number of turns. It carries a current of 15 A. If it is equivalent to a magnet of the same size and magnetisation \overline{M} , then $|\overline{M}|$ is
 a) $3\pi \text{ Am}^{-1}$ b) $30000\pi \text{ Am}^{-1}$ c) 300 Am^{-1} d) 30000 Am^{-1}
50. (A) It is more difficult to open the door by applying the force near the hinge.
 (R) Torque is maximum at hinge.
 a) If both assertion and reason are true and reason is the correct explanation of assertion.
 b) If both assertion and reason are true but reason is not the correct explanation of assertion.
 c) If assertion is true but reason is false. d) If both assertion and reason are false.
 e) If assertion is false but reason is true.
51. In the solid state, MgO has the same structure as that of sodium chloride. The number of oxygens surrounding each magnesium in MgO is
 a) 6 b) 1 c) 2 d) 4
52. Which of the following is not a method of removing impurities from a colloidal sol?
 a) Electrodialysis b) Ultrafiltration c) Ultra centrifugation d) Distillation
53. Which of the following sequence regarding ionisation potential of coinage metal is correct?
 a) $\text{Cu} > \text{Ag} > \text{Au}$ b) $\text{Cu} < \text{Ag} < \text{Au}$ c) $\text{Cu} > \text{Ag} < \text{Au}$ d) $\text{Ag} > \text{Cu}$

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54. If 10gm of a gas at atmospheric pressure is cooled from 273°C to 0°C keeping the volume constant, its pressure would become
 a) 2 atm b) 273 atm c) 1/273 atm d) 1/2 atm
55. Which one given below is a non-reducing sugar?
 a) Maltose b) Lactose c) Glucose d) Sucrose
56. Set of elements with the following atomic numbers belong to the same group
 a) 9, 16, 35, 3 b) 12, 20, 4, 38 c) 11, 19, 27, 5 d) 24, 47, 42, 55
57. The increasing order of reduction of alkyl halides with zinc and dilute HCl is:
 a) R-Cl < R-I < R-Br b) R-Cl < R-Br < R-I c) R-I < R-Br < R-Cl d) R-Br < R-I < R-Cl
58. A gaseous mixture was prepared by taking equal mole of CO and N₂. If the total pressure of the mixture was found 1 atmosphere, the partial pressure of the nitrogen (N₂) in the mixture is:
 a) 0.5 atm b) 0.8 atm c) 0.9 atm d) 1 atm
59. When BeCl₂ is hydrolysed, white fumes of gas are given out. The intensity of fumes intensifies when a rod dipped in moist ammonia is brought near the mouth of the test tube. The gas which comes out during hydrolysis is
 a) Cl₂ b) HCl c) NH₄OH d) NH₄Cl
60. The 4f-subshell is successively filled for
 a) Rare earths b) Rare gases c) Transition metals d) Alkaline earth metals
61. The ratio of kinetic energies of 2gm of H₂ and 4gm of CH₄ at a given temperature is
 a) 4:1 b) 2:32 c) 1:4 d) 16:2
62. In HCHO, there are X non-bonding electron pairs, Y σ-bonds and Z π-bonds, X, Y and Z are
 a) 1, 1, 3 b) 2, 3, 1 c) 1, 2, 3 d) 1, 3, 2
63. If, ΔE is the heat of reaction for C₂H₅OH(l) + 3O₂(g) → 2CO₂(g) + 3H₂O(l) at constant volume, the ΔH (heat of reaction at constant pressure), then the correct relation is :
 a) ΔH = ΔE + RT b) ΔH = ΔE - RT c) ΔH = ΔE - 2RT d) ΔH = ΔE + 2RT
64. Which of the following ions has electronic configuration [Ar]3d⁶?
 (At. nos. Mn = 25, Fe = 26, Co = 27, Ni = 28)
 a) N₁³⁺ b) Mn³⁺ c) Fe³⁺ d) Co³⁺
65. In which of the following species the bond is non directional?
 a) NCl₃ b) RbCl c) BeCl₂ d) BCl₃
66. **Assertion:** Acetaldehyde can be prepared by addition of water to ethyne in the presence of H₂SO₄ and HgSO₄.
Reason: Higher alkynes give higher aldehydes
 a) If both assertion and reason are true and reason is the correct explanation of assertion.
 b) If both assertion and reason are true but reason is not the correct explanation of assertion
 c) If assertion is true but reason is false d) If both assertion and reason are false.
67. Which one of the following is a mineral of iron?
 a) Malachite b) Cassiterite c) Pyrolusite d) Magnetite
68. Use the data given in and find out the most stable ion in its reduced form.
 $E^0_{Cr^{2+}/Cr^{3+}} = 1.33V$; $E^0_{Cl_2/Cl^-} = 1.36V$
 $E^0_{MnO_4^-/Mn^{2+}} = 1.51V$; $E^0_{Cr^{3+}/Cr} = -0.74V$
 a) Cl⁻ b) Cr³⁺ c) Cr d) Mn²⁺
69. Which alkane is produced when sodium salt of butanoic acid is heated with soda lime?
 a) CH₃CH₃ b) CH₃CH₂CH₂CH₃ c) CH₄ d) CH₃CH₂CH₃
70. Which of the following is correct representation of reaction of acidified permanganate solution with sulphur dioxide?
 a) 2MnO₄⁻ + 5SO₂ + 2H₂O → 5SO₄²⁻ + 2Mn²⁺ + 4H⁺ b) 2MnO₄⁻ + SO₂ + 2H₂O → S + Mn²⁺ + 4H⁺
 c) 2MnO₄⁻ + 5SO₂ + 2H₂O → 4SO₃²⁻ + S + 2Mn²⁺ + 4H⁺ d) 3MnO₄⁻ + 2SO₂ + 2H₂O → 2S + 3Mn²⁺ + 4H⁺
71. The E⁰ for Cl⁻/Cl₂ is 1.36, for I⁻/I₂ is +0.53, for Ag⁺/Ag is +0.79, Na⁺ is -2.71 and for Li⁺/Li is -3.04 V Arrange the following species in decreasing order of reducing strength. I⁻, Ag, Cl⁻, Na

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a) $\text{Li} > \text{Cl} > \text{Ag} > \text{I}^- > \text{Na}$ b) $\text{Li} > \text{Na} > \text{I}^- > \text{Ag} > \text{Cl}^-$ c) $\text{Cl}^- > \text{Ag} > \text{I}^- > \text{Na} > \text{Li}$ d) $\text{Na} > \text{Li} > \text{Ag} > \text{Cl}^- > \text{I}^-$

72. An inhibitor is described as:

- a) a substance that slows down or stops a reaction b) a substance which inhibits the properties of a catalyst
c) a substance formed during the reaction and does not participate in the reaction
d) a substance which prevents formation of products in a reaction being most reactive

73. The element which exists in liquid state for a wide range of temperature and can be used for measuring high temperature is

- a) B b) Al c) Ga d) In

74. How many electrons can fit in the orbital for which $n = 3$ and $l = 1$?

- a) 2 b) 6 c) 10 d) 14

75. The peptide linkage formed between glycine ($\text{NH}_2\text{CH}_2\text{COOH}$) and alanine $\left(\begin{array}{c} \text{NH}_2 - \text{CH} - \text{COOH} \\ | \\ \text{CH}_3 \end{array} \right)$ to give

glycylalanine can be shown as:

- a) $\text{NH}_2 - \text{CH}_2 - \text{NH} - \begin{array}{c} | \\ \text{CH} \\ | \\ \text{COOH} \end{array}$ b) $\text{NH}_2 - \text{CH}_2 - \text{CONH} - \begin{array}{c} | \\ \text{CH} \\ | \\ \text{COOH} \end{array}$
c) $\text{H}_2\text{NCOCH}_2 - \begin{array}{c} | \\ \text{CH} \\ | \\ \text{CONH}_2 \end{array}$ d) $\text{HOOC} - \begin{array}{c} | \\ \text{CH}_2 \\ | \\ \text{NH} - \text{NH} - \begin{array}{c} | \\ \text{CH} \\ | \\ \text{COOH} \end{array} \end{array}$

76. Among the following which is not the π -bonded organometallic compound?

- a) $\text{K} [\text{PtCl}_3 (n^2 - \text{C}_2\text{H}_4)]$ b) $\text{Fe}(n^5 - \text{C}_5\text{H}_5)_2$ c) $\text{Cr}(n^6 - \text{C}_6\text{H}_6)_2$ d) $(\text{CH}_3)_4\text{Sn}$

77. In a protein molecule, various amino acids are linked together by _____.

- a) α -glycosidic bond b) β -glycosidic bond c) peptide bond d) dative bond

78. Match the column I with column II and mark the appropriate choice

Column I	Column II
(A) $\begin{array}{c} \diagup \\ \text{C} = \text{O} \end{array} \xrightarrow{\text{LiAlH}_4}$	(i) $-\text{COONa}$
(B) $\begin{array}{c} \diagup \\ \text{C} = \text{O} \end{array} \xrightarrow[\text{conc. HCl}]{\text{Zn/Hg}}$	(ii) $-\text{COOH}$
(C) $\begin{array}{c} \diagup \\ \text{C} = \text{O} \end{array} \xrightarrow{\text{Ag}_2\text{O}/\text{OH}^-}$	(iii) $\begin{array}{c} \diagup \\ \text{CH}_2 \end{array}$
(D) $\begin{array}{c} \diagup \\ \text{C} = \text{O} \end{array} \xrightarrow{\text{NaOX}}$	(iv) $-\text{CH}_2\text{OH}$

- a) (A) \rightarrow (i), (B) \rightarrow (ii), (C) \rightarrow (iii), (D) \rightarrow (iv) b) (A) \rightarrow (iv), (B) \rightarrow (iii), (C) \rightarrow (ii), (D) \rightarrow (i)
c) (A) \rightarrow (ii), (B) \rightarrow (iv), (C) \rightarrow (iii), (D) \rightarrow (i) d) (A) \rightarrow (iii), (B) \rightarrow (i), (C) \rightarrow (ii), (D) \rightarrow (iv)

79. $3A \rightarrow B + C$. It would be a zero order reaction, when :

- a) the rate of reaction is proportional to square of concentration of A
b) the rate of reaction remains same at any concentration of A
c) the rate remains unchanged at any concentration of B and C
d) the rate of reaction doubles if concentration of B is increased to double

80. Which of the following carboxylic acids is highly insoluble in water?

- a) Propanoic acid b) Butanoic acid c) Pentanoic acid d) Decanoic acid

81. Electrical conductance through metals is called metallic or electronic conductance and is due to the movement of electrons. The electronic conductance depends on

- a) the nature and structure of the metal b) the number of valence electrons per atom
c) change in temperature d) all of these.

82. Copper crystallises in face-centred cubic lattice with a unit cell length of 361 pm. What is the radius of copper atom in pm?

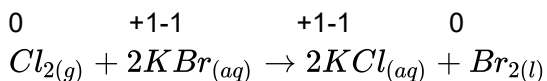
- a) 157 b) 181 c) 108 d) 128

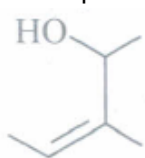
83. What happens when tertiary butyl alcohol is passed over heated copper at 300°C ?

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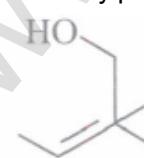
- a) Secondary butyl alcohol is formed. b) 2-Methylpropene is formed. c) 1-Butene is formed.
 d) Butanal is formed.

84. Which type of redox reaction is shown by the following reaction?

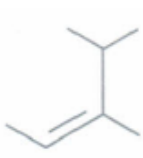


- a) Non-metal displacement reaction b) Disproportionation reaction
 c) sodium loses electrons and is oxidised while water is reduced
 d) water loses electrons and is oxidised to hydrogen.
85. **Assertion:** $CuSO_4 \cdot 5H_2O$ has one hydrogen-bonded molecule of water.
Reason: The four molecules of water are coordinated in $CuSO_4 \cdot 5H_2O$.
 a) If assertion is true but reason is false. b) If both assertion and reason are false.
 c) If both assertion and reason are true and reason is the correct explanation of assertion.
 d) If both assertion and reason are true but reason is not the correct explanation of assertion.
86. The sum of coordination number and oxidation number of the metal M in the complex $[M(en)_2(C_2O_4)]Cl$ (where en is ethylenediamine) is:
 a) 9 b) 6 c) 7 d) 8
87. 1, 2-Benzpyrene is _____ .
 a) a polynuclear hydrocarbon b) carcinogenic in nature c) an aromatic hydrocarbon d) both (a) and (b).
88. The oxidation of toluene to benzaldehyde by chromyl chloride is called
 a) Etard reaction b) Riemer-Tiemann reaction c) Wurtz reaction d) Cannizzaro's reaction
89. Which of the following statements is not true?
 a) Ammonia acts as sink for NO_x b) Limestone acts as sink for SO_x .
 c) The average residence time of NO is one month.
 d) SO_x can be removed from flue gases by passing through a solution of citrate ions.
90. Atomic numbers of few elements are given below. Which of the pairs belongs to s-block?
 a) 7, 14 b) 3, 20 c) 8, 15 d) 9, 17
91. In which of the following molecules/ions BF_3 , NO_2^- , NH_2^- and H_2O the central atom is sp^2 hybridised?
 a) NH_2^- and H_2O b) NO_2^- and H_2O c) BF_3 and NO_2^- d) NO_2^- and NH_2^-
92. The decreasing order of ionization enthalpy in alkali metals is:
 a) $Na > Li > K > Rb$ b) $Rb < Na < K < Li$ c) $Li > Na > K > Rb$ d) $K < Li < Na < Rb$
93. Consider the reaction, $2N_2O_5 \rightarrow 4NO_2 + O_2$ In the reaction NO_2 is being formed at the rate of $0.0125 \text{ mol L}^{-1} \text{ s}^{-1}$. What is the rate of reaction at this time?
 a) $0.0018 \text{ mol L}^{-1} \text{ s}^{-1}$ b) $0.0031 \text{ mol L}^{-1} \text{ s}^{-1}$ c) $0.0041 \text{ mol L}^{-1} \text{ s}^{-1}$ d) $0.050 \text{ mol L}^{-1} \text{ s}^{-1}$
94. Correct representation of 3-methylpent-3-en-2-ol is:
- 

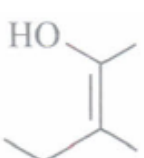
a)



b)



c)



d)
95. For the reaction: $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$, the standard free energy is $\Delta G^0 > 0$. The equilibrium constant (K) would be _____
 a) $K=0$ b) $K>1$ c) $K=1$ d) $K<1$
96. The first periodic law stated by Mendeleev was:
 a) there is no correlation in the properties and atomic weights of the elements
 b) the properties of the elements are a periodic function of their atomic numbers
 c) the properties of the elements are a periodic function of their atomic weights
 d) the properties of the elements are a periodic function of their empirical formula.

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97. If 0.15 g of solute, dissolved in 15 g of solvent, is boiled at a temperature higher by 0.216°C , than that of the pure solvent, the molecular weight of the substance is (molal elevation constant for the solvent is 2.16°C)
a) 1.01 b) 10 c) 10.1 d) 100
98. Given below are few statements. Mark the statement which is not correct.
a) Atoms are neither created nor destroyed in a chemical reaction
b) Law of definite proportion states that a given compound always contains exactly the same proportion of elements by weight
c) Gay Lussac's law of chemical combination is valid for all substances.
d) A pure compound has always a fixed proportion of masses of its constituents.
99. A compound is formed by two elements Y and Z. The element Z forms ccp and atoms Y occupy $1/3$ rd of tetrahedral voids. The formula of the compound is
a) Y_2Z_3 b) YZ c) YZ_3 d) Y_2Z
100. The ionization constant of benzoic acid is 6.46×10^{-5} and K_{sp} for silver benzoate is 2.5×10^{-13} . How many times is silver benzoate more soluble in a buffer of $\text{pH} = 3.19$ compared to its solubility in pure water?
a) 4 b) 3.32 c) 3.01 d) 2.5
101. Which step is called gateway step/link reaction in aerobic respiration?
a) Glycolysis b) Formation of acetyl coenzymeA c) Citric acid formation d) ETS terminal oxidation
102. Which one of the following is now being commercially produced by biotechnological procedures?
a) Nicotine b) Morphine c) Quinine d) Insulin
103. **Assertion:** Digestion is chiefly extracellular in Ctenophores.
Reason: In Ctenophores, digestive tract is incomplete.
a) If both assertion and reason are true and reason is the correct explanation of assertion
b) If both assertion and reason are true but reason is not the correct explanation of assertion
c) If assertion is true but reason is false. d) If both assertion and reason are false.
104. Which one of the following statements is incorrect?
a) The presence of nonrespiratory air sacs, increases the efficiency of respiration in birds.
b) In insects, circulating body fluids serve to distribute oxygen to tissues.
c) The principle of countercurrent flow facilitates efficient respiration in gills of fishes.
d) The residual area in lungs slightly decreases the efficiency of respiration in mammals.
105. Which one of the following is not a synthetic auxin
a) 2, 4-D b) 2-4-5-T c) NAA d) IAA
106. Spirogyra is a sexually reproducing alga in which vegetative thallus is haploid. In Spirogyra, meiosis
a) never occurs b) occurs at time of gamete production c) occurs after fertilisation
d) occurs during vegetative growth
107. Which of the following is correct regarding HIV, hepatitis B, gonorrhoea, trichomoniasis?
a) Trichomoniasis is an STD whereas others are not.
b) Gonorrhoea is a viral disease whereas others are bacterial.
c) HIV is a pathogen whereas others are diseases
d) Hepatitis B is eradicated completely whereas others are not.
108. The morphological nature of the edible part of coconut is:
a) Cotyledon b) Endosperm c) Pericarp d) Perisperm
109. Which of the following is correct order of the evolutionary history of man?
a) Peking man, Homo sapiens, Neanderthal man, CroMagnon man
b) Peking man, Neanderthal man, Heidelberg man, Cro-Magnon man
c) Peking man, Heidelberg man, Neanderthal man, Cro-Magnon man
d) Peking man, Neanderthal man, Homo sapiens, Heidelberg man
110. The use of bio - resources by multinational companies & other organisations without proper authorisation from the countries & people concerned, is known as-

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- a) Biopatent b) Biopiracy c) Biower d) Biodiversity

111. Which function of tapetum is correct?
 a) Helps in pollen wall formation b) Transportation of nutrients to inner side of anther
 c) Synthesis of callase enzyme for separation of microspore tetrads d) All of these
112. Phosphorus and nitrogen ions generally get depleted in soil because they usually occur as ____
 a) neutral ions b) negatively charged ions c) positively charged ions
 d) both positively and negatively charged but disproportionate mixture
113. Which of the following is not a characteristic of an ideal contraceptive?
 a) User-friendly b) Irreversible c) Easily available d) Least side-effects
114. Innumerable (many) vascular bundles, lack of cambium and lack of a well demarcated pith is found in
 a) Sugarcane, Grass b) Sunflower, Neem c) Radish, Neem d) Pea, Peepal
115. Potential difference across resting membrane is negatively charged. This is due to differential distribution of the following ions.
 a) Na^+ and K^+ ions b) CO_3^{3++} and Cl^- ions c) Ca^{++} and Mg^{++} ions d) Ca^{+4} and Cl^- ions
116. The term 'totipotency' refers to the capacity of a
 a) cell to generate whole plant b) bud to generate whole plant c) seed to germinate
 d) cell to enlarge in size.
117. The effects of genetic drift are more marked in
 a) larger populations b) Mendelian populations c) island populations d) smaller populations
118. Tracheids differ from other tracheary elements in:
 a) Having casparian strips b) Being imperforate c) Lacking nucleus d) Being lignified
119. Select the option that correctly identifies the chemical bonds present in the given biomolecules.
 Polysaccharides - A, Proteins - B, Fats - C, Water - D

a)

A	B	C	D
Ester	Peptide	Glycosidic	Hydrogen

b)

A	B	C	D
Glycosidic	Peptide	Ester	Hydrogen

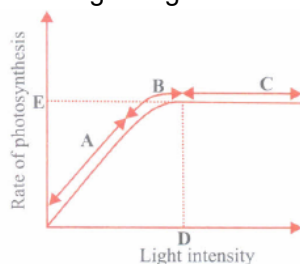
c)

A	B	C	D
Glycosidic	Peptide	Hydrogen	Ester

d)

A	B	C	D
Hydrogen	Ester	Peptide	Glycosidic

120. Which does not occurs in prophase?
 a) Decondensation of chromatin b) Condensation of chromatin c) Appearance of chromosome
 d) Disapperance of nuclear membrane and nucleolus
121. Plants with ovaries having only one or a few ovules are generally pollinated by:
 a) bees b) butterflies c) birds d) wind
122. The term 'antiauxin' refers to
 a) raw material used in the synthesis of auxin b) compound which inhibits the action of auxin
 c) artificially synthesised auxin d) active form of auxin
123. Study the given graph showing the effect of light intensity on the rate of photosynthesis. Which of the following statements regarding this is correct?



- a) Light is a limiting factor in the region A.
 b) Region C represents that rate of photosynthesis is not increased further by increasing light intensity because some other factor became limiting.

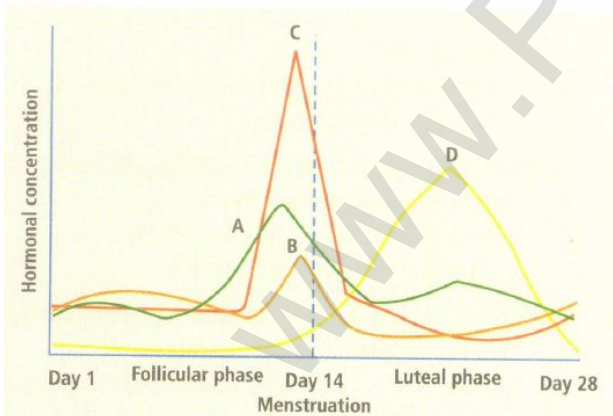
- c) Point D represents the intensity of light at which some other factor became limiting. d) All of these
124. Select the correct match.
 a) Quiescent phase - G₂ phase b) Synthesis phase - G₁ phase c) Centromere splitting - Anaphase
 d) Chromosomal condensation - Telophase
125. During light reaction in photosynthesis the following are formed
 a) ATP and sugar b) hydrogen, O₂ and sugar c) ATP, hydrogen donor and O₂
 d) ATP, hydrogen and O₂ donor
126. Ergot of rye is caused by a species of _____ .
 a) Uncinula b) Ustilago c) Claviceps d) Phytophthora.
127. Pasteurisation of milk involve heating for _____.
 a) 60 min at about 90°C b) 30 min at about 50°C c) 30 min at about 65°C d) 60 min at 100°C
128. In which of the following order, the process of digestion proceeds?
 a) Digestion → Ingestion → Absorption → Assimilation → Egestion
 b) Digestion → Ingestion → Assimilation → Absorption → Egestion
 c) Ingestion → Digestion → Assimilation → Absorption → Egestion
 d) Ingestion → Digestion → Absorption → Assimilation → Egestion
129. The aquatic fern, which is an excellent biofertiliser is _____.
 a) Azolla b) Pteridium c) Salvinia d) Marselia
130. The process of crossing over is assisted by which of the following enzymes?
 a) Endonuclease b) Polymerase c) Ligase d) Both (a) and (c)
131. Minamata disease was caused due to the consumption of:
 a) sea food containing lot of cadmium b) fish contaminated with mercury c) oysters with lots of pesticides
 d) sea food contaminated with selenium
132. Which one of the following elements in plants is not remobilised?
 a) Phosphorus b) Calcium c) Potassium d) Sulphur
133. Which of the following statements is/are incorrect about the electrical synapse?
 (i) At electrical synapses, the membranes of pre and post synaptic neurons are in very close proximity.
 (ii) Electrical current can flow directly from one neuron into the other across the synapses.
 (iii) Transmission of an impulse across electrical synapses is very similar to impulse conduction along single axon.
 (iv) Electrical synapses pass electrical signal between cells with the use of Ach.
 (v) Electrical synapses are fast.
 (vi) Electrical synapses are rare in our system
 a) (ii), (iv) and (v) b) (i) and (iii) c) (iv) only d) (i), (v) and (vi)
134. Match column I with column II and select the correct option from the given codes.

Column I (Animals)	Column II (Respiratory structures)
A. Pigeon	(i) Book gills
B. Scorpion	(ii) Pharyngeal wall
C. Planaria	(iii) Lungs
D. Earthworm	(iv) Gills
E. Spiders	(v) Book lungs
F. King crab	(vi) Body surface
G. Prawn	(vii) Skin
H. Labeo	

- a) A-(iii), B-(v), C-(vi), D-(vii), E-(v), H(i), G-(iv), H-(iv) b) A-(v), B-(ii), C-(vi), D-(vii), E-(vi), F-(iv), G-(i), H-(iii)
 c) A-(vi), B-(iv), C-(vii), D-(v), E-(i), F-(ii), G-(iii), H-(vii) d) A-(i) , B-(v), C-(vii), D-(iii), E-(vii), F-(ii), G-(iv), H-(vi)
135. Exponential growth is observed in a population when
 a) resources in the habitat are unlimited b) each species has the ability to realise its full innate potential
 c) both (a) and (b) d) none of these

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136. In Whittaker's five kingdom system of classification, eukaryotes are distributed among
 a) two kingdoms b) three kingdoms c) four kingdoms d) all the five kingdoms
137. Yellow mosaic virus resistant variety "Parbhani Kranti" belongs to:
 a) bhindi b) chilli c) barley d) cauliflower
138. Micropropagation is
 a) propagation of microbes in vitro b) propagation of plants in vitro c) propagation of cells in vitro
 d) growing plants on smaller scale
139. **Assertion:** Intra cytoplasmic sperm injection (ICSI) is a procedure to form an embryo in vitro.
Reason: In ICSI, sperm is directly injected into the ovum.
 a) If both assertion and reason are true and reason is the correct explanation of assertion.
 b) If both assertion and reason are true but reason is not the correct explanation of assertion.
 c) If assertion is true but reason is false. d) If both assertion and reason are false.
140. What will be the molecular formula of a polypeptide consisting of 10 glycine molecules when the formula of glycine is $C_2H_5O_2N$?
 a) $C_6H_{12}ON_5$ b) $C_{20}H_{32}O_{11}N_{10}$ c) $C_{30}H_{16}O_6N_{10}$ d) $C_{25}H_{16}O_6N_5$
141. The chances of contracting, bird flu from a properly Cooked (above $100^\circ C$) chicken and eggs are:
 a) Very high b) High c) Moderate d) None of these
142. In case of a couple where the male is having a very low sperm count, which technique will be suitable for fertilisation?
 a) Intra uterine transfer b) Gamete intracytoplasmic fallopian transfer c) Artificial Insemination
 d) Intracytoplasmic sperm injection
143. Read the given statements and select the correct option.
 Statement 1: Pioneer community is the stable and final biotic community of an ecological succession.
 Statement 2: Pioneer community has maximum diversity and niche specialisation.
 a) Both statements 1 and 2 are correct. b) Statement 1 is correct but statement 2 is incorrect
 c) Statement 1 is incorrect but statement 2 is correct. d) Both statements 1 and 2 are incorrect
144. Refer to the given graph representing interplay of different hormones (A-D) during menstrual cycle in women and answer the questions that follow.



- Which hormone is most effective in producing uterine changes during menstrual cycle?
 a) A b) B c) C d) D
145. Which of the following statements is/are correct?
 a) The current interest in the manipulation of microbes, plants and animals has raised serious ethical issues
 b) One possible risk of genetic engineering is the accidental production of antibiotic resistant microorganisms
 c) Although risks are possible, genetic engineering offers more of a contribution to human welfare than threats
 d) All of these
146. **Assertion :** Virus-infected cells secrete proteins known as interferons.
Reason : Interferons protect the non-infected cells from bacterial infection.

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- a) If both assertion and reason are true and reason is the correct explanation of assertion.
 b) If both assertion and reason are true but reason is not the correct explanation of assertion.
 c) If assertion is true but reason is false. d) If both assertion and reason are false.

147. Match column I with column II and select the correct option from the given codes

Column I	Column II
A. Cartilaginous fishes	(i) Usually external fertilisation
B. Bony fishes	(ii) Internal fertilisation
	(iii) Mostly oviparous
	(iv) Mostly viviparous
	(v) Direct development

- a) A-(i), (iii), (v); B-(ii), (iv) b) A-(ii), (iv); B-(i), (iii), (v) c) A-(iii), (v); B-(i), (ii), (iv) d) A-(i), (ii), (iv); B-(iii), (v)
148. In cyclic photophosphorylation, the electron released by reaction centre (P_{700}) is ultimately accepted by
 a) ferredoxin b) $NADP^+$ c) reaction centre (P_{700}) d) plastocyanin
149. Which of the following RNA play structural and catalytic role during translation
 a) m-RNA b) t-RNA c) r-RNA d) All
150. 'Flavr Savr' variety of tomato which remains fresh for a longer period than normal tomato variety
 a) has high amount of enzyme polygalacturonase b) has reduced amount of enzyme polygalacturo-nase
 c) is a pest resistant variety d) is rich in vitamin A and prevents night blindness
151. Which one of the following does not act as a neuro-transmitter?
 a) Cortisone b) Acetylcholine c) Dopamine d) Norepinephrine
152. Edible part in mushrooms is:-
 a) Basidiospores b) Mycelium c) Pseudomycelium d) Complete basidiocarp
153. The most active phagocytic white blood cells are:
 a) Neutrophils and monocytes b) Neutrophils and eosinophils c) Lymphocytes and macrophages
 d) Eosinophils and lymphocytes
154. Which of following feature is not necessary for cloning vector-
 a) Origin of replication b) high copy number c) selectable marker d) Cloning sites
155. **Assertion** : Antiretroviral drugs are very effective in treatment against AIDS.
Reason : AIDS virus is a retrovirus with ssDNA as genetic material.
 a) If both assertion and reason are true and reason is the correct explanation of assertion.
 b) If both assertion and reason are true but reason is not the correct explanation of assertion.
 c) If assertion is true but reason is false. d) If assertion is true but reason is false.
156. Free-central placentation is found in :
 a) Dianthus b) Argemone c) Brassica d) Citrus
157. Functionwise, just as there are nephridia in an earthworm, so are _____ .
 a) parotid glands in toad b) statocysts in prawn c) flame cells in liver fluke d) myotomes in fish
158. Select the correct statement regarding IUDs out of the following.
 a)
 Intrauterine devices (IUDs) are objects which are inserted in the uterus of the female through vagina by expert doctors
 b)
 IUDs may be categorised as non-medicated IUDs (e.g. lippes loop). copper releasing IUDs (e.g., CuT. Cu7, Multiload 375) and hormone releasing IUDs (e.g., progestasert, LNG-20).
 c) In India, use of IUDs is one of the most widely accepted methods of contraception these days.
 d) All of these
159. A sterile jacket around gametangia is found among
 a) bryophytes b) lichens c) algae d) fungi.

160. Read the given statements and select the correct option.

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Statement 1 : Elongation of reduced stem is possible due to application of gibberellin hormone.

Statement 2 : Gibberellin stimulates cell division and cell elongation.

- a) Both statements 1 and 2 are correct b) Statement 1 is correct but statement 2 is incorrect
c) Statement 1 is incorrect but statement 2 is correct d) Both statements 1 and 2 are incorrect.

161. Plants deficient of element zinc, show its effect on the biosynthesis of plant growth hormone _____

- a) abscisic acid b) auxin c) cytokinin d) ethylene

162. Trypanosoma belongs to class _____ .

- a) Sarcodina b) Zooflagellata c) Ciliata d) Sporozoa

163. Mycoplasmas are classified under which of the following kingdoms?

- a) Monera b) Protista c) Fungi d) Plantae

164. Match column I with column II and select the correct option from the codes given below.

Column-I	Column-II
A Superior vena cava	(i) Carries deoxygenated blood to lungs
B Inferior vena cava	(ii) Carries oxygenated blood from lungs
C Pulmonary artery	(iii) Brings deoxygenated blood from lower part of body to right atrium
D Pulmonary vein	(iv) Bring deoxygenated blood from upper part of body to right atrium

- a) A - (ii), B - (iv), C - (iii), D - (i) b) A - (iv), B - (i), C - (ii), D - (iii) c) A - (iv), B - (iii), C - (i), D - (ii)
d) A - (iv), B - (i), C - (iii), D - (ii)

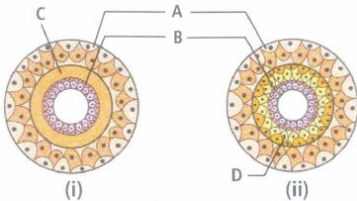
165. The term 'auxin precursor' refers to

- a) raw material used in the synthesis of auxin b) compound which inhibits the action of auxin
c) artificially synthesised auxin d) active form of auxin.

166. Examine the figures of diploblastic

(i) and triploblastic

(ii) organisation in animals given below and identify the labelled parts A to D.



a)

A	B	C	D
Mesoglea	Ectoderm	Endoderm	Mesoderm

b)

A	B	C	D
Endoderm	Mesoderm	Mesoglea	Ectoderm

c)

A	B	C	D
Mesoderm	Mesoglea	Ectoderm	Endoderm

d)

A	B	C	D
Ectoderm	Endoderm	Mesoglea	Mesoderm

167. According to Darwin, The organic evolution is due to _____

- a) Interspecific competition b) Competition within closely related species
c) Reduced feeding efficiency in one species d) Intraspecific competition

168. Acid rain is due to

- a) O₃, PAN b) Oxides of nitrogen and sulphur c) Green house effect d) All of these

169. In crop improvement programme, haploids are important because they _____.

- a) require one half of nutrients b) are helpful in study of meiosis c) grow better under adverse conditions
d) form perfect homozygous

170. Read the following statements and select the correct option.

Statement 1 : Euglena can be considered as a plant due to the presence of chlorophyll.

Statement 2 : Euglena cannot be classified on the basis of two kingdom system of classification.

- a) Both statements 1 and 2 are correct b) Statement 1 is correct but statement 2 is incorrect
c) Statement 1 is incorrect but statement 2 is correct. d) Both statements 1 and 2 are incorrect

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171. Who is credit with identifying petrocrops?

- a) M.S.Swaminathan b) M.Calvin c) H.Krebs d) N.Borlaug

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172. Which Mendelism Idea is depicted by a cross in which the F₁ generation resembles both the parents?

- a) co-dominance b) Incomplete dominance c) Law of dominance d) inheritance of one gene

173. **Assertion:** Eukaryotic mRNA requires post-transcription processing for formation of functional mRNA.

Reason : Eukaryotic transcripts possess extra non-functional segments called introns.

- a) If both assertion and reason are true and reason is the correct explanation of assertion.
b) If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false. d) If both assertion and reason are false

174. The earliest fossil form in the phylogeny of horse is _____

- a) Merychippus b) Meshippus c) Eohippus d) Equus

175. Nitrogen and hydrogen combine to form ammonia under high temperature and pressure conditions. This is an example of

- a) biological N₂ fixation b) natural N₂ fixation c) industrial N₂ fixation d) electrical N₂ fixation

176. Protoplasmic elements are:

- a) C, H, O, P, N, S b) C, H, O, Fe, N c) N, S, Fe, P, K d) Fe, Mg, Ca, N, P

177. Which of the following is not one of the three plant macronutrients included in most fertilisers?

- a) O b) N c) P d) K

178. Secondary productivity is rate of formation of new organic matter by _____.

- a) Parasite b) Consumer c) Decomposer d) Producer

179. If a patient suffers a stroke that destroys the optic tract on the right side of the brain, which of the following visual defects will result?

- a) There will be no vision in the left eye, but vision will be normal in the right eye
b) The patient will not perceive images of objects striking the left half of the retina in the left eye
c) The patient will not perceive images of objects striking the right half of the retina in the right eye.
d) Neither eye will perceive objects in the right side of the patient's field of view.

180. Read the following statements regarding arithmetic growth and select the correct answer.

- (i) Rate of growth is constant.
(ii) One daughter cell remains meristematic while the other one differentiates and matures.
(iii) Mathematical expression is $L_t = L_0 + rt$.

- a) Statements (i) and (ii) are correct b) Statements (ii) and (iii) are correct
c) Statements (i) and (iii) are correct. d) All statements are correct.

181. Which is employed for artificial ripening of banana fruits?

- a) Auxin b) Carbazin c) Ethylene d) Cytokinin

182. In Mendelian dihybrid cross, when heterozygous Round Yellow are self crossed, Round Green offsprings are represented by the genotype

- a) RrYy, RrYY, RRYy b) Rryy, RRyy, rryy c) rrYy, rrYY d) Rryy, RRyy.

183. Which of the following pair is a sedimentary type of biogeochemical cycle?

- a) Oxygen and nitrogen b) Phosphorous and sulphur c) Phosphorous and nitrogen
d) Phosphorus and carbon dioxide

184. Nissl bodies are mainly composed of _____

- a) nucleic acids and SER b) DNA and RNA c) proteins and lipids d) free ribosomes and RER

185. The taxon which includes related families is

- a) Order b) Class c) Genus d) Division

186. Which of the following is mainly produced by the activity of anaerobic bacteria on sewage?

- a) Mustard gas b) Marsh gas c) Laughing gas d) Propane

187. Select the incorrect statement regarding imbibition.

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- a) Imbibition is the phenomenon of adsorption of water or any other liquid without forming solution.
 b) The liquid which is imbibed is called as imbibate.
 c) There occurs a decrease in volume of imbibant during imbibition
 d) Water is absorbed by germinating seeds through imbibition.
188. Identify the substances having glycosidic bond and peptide bond, respectively in their structure.
 a) Cellulose, lecithin b) Inulin, Insulin c) Chitin, cholesterol d) Glycerol, trypsin
189. Maximum water reabsorption occurs in
 a) DCT b) PCT c) Collecting duct d) Descending limb of loop of Henle
190. Prokaryotic topoisomerase is
 a) Helicase b) Primase c) DNA polymerase d) DNA gyrase
191. A DNA sequence undergoes three subsequent point mutations which result in subsequent changes in transcription of mRNA as shown below:
 Original mRNA : AUG CAU CUC ACG GAU UAG
 Point mutation 1 : AUG CAU CUU ACG GUA UAG
 Point mutation 2 : AUG CAU GCU UAC GGU AUA
 Point mutation 3 : AUG CAU GCU UAA GGU AUA
 Select the correct sequence of point mutations that occurred in the DNA.
 a) Missense mutation → Frameshift mutation → Nonsense mutation
 b) Silent mutation → Nonsense mutation → Frameshift mutation
 c) Silent mutation → Frameshift mutation → Nonsense mutation
 d) Missense mutation → Frameshift mutation → Silent mutation
192. The lymph serves to _____
 a) transport oxygen to the brain b) transport carbon dioxide to the lungs
 c) return the interstitial fluid to the blood d) return the WBCs and RBCs to the lymph nodes
193. A human female reaches menopause around the age of
 a) 50 years b) 15 years c) 70 years d) 25 years.
194. Which of the following cranial nerves of man is both sensory and motor?
 a) Olfactory b) Optic c) Vagus d) Oculomotor
195. Read the following statements.
 (i) In Limnophila heterophylla, the lamina of submerged leaves is very much dissected while the lamina of aerial leaves is entire. This variation in the form of lamina is referred to as _____
 (ii) Potato tubers, when exposed to light, turn green due to the increased production of a glycoalkaloid named _____
 (iii) In _____, ovary arises from the bottom of the cup-shaped thalamus and androperianth arises from the rim of the cup-shaped thalamus
 (iv) Underground stems can be differentiated from roots by _____ of axillary buds on the nodes. Select the correct fill-ups out of the following for the above statements
- | | |
|----------------------------|----------------------------|
| a) | b) |
| (i) _____ | (i) _____ |
| (ii) _____ | (ii) _____ |
| (iii) _____ | (iii) _____ |
| (iv) _____ | (iv) _____ |
| developmental heterophylly | environmental heterophylly |
| solanine | solanine |
| Rosapresence | Prunuspresence |
- | | |
|----------------------------|-----------------------|
| c) | d) |
| (i) _____ | (i) _____ |
| (ii) _____ | (ii) _____ |
| (iii) _____ | (iii) _____ |
| (iv) _____ | (iv) _____ |
| environmental heterophylly | adaptive heterophylly |
| chlorophyll | lycopene |
| Prunusabsence | Cucurbitaabsence |
196. Which step has been taken by Government of India to cater to the requirement of patent terms and other emergency provisions in this regard?
 a) Biopiracy Act b) Indian Patents Bill c) ETI Act d) Negotiable instruments Act
197. In which one of the following enzymes, is copper necessarily associated as an activator?
 a) Carbonic anhydrase b) Tryptophanase c) Lactic dehydrogenase d) Tyrosinase
198. Genes located on _____ chromosomes are _____

- a) mutant genes b) sex-linked genes c) autosomal genes d) holandric genes
199. Which of the following biomolecules is common to respiration mediated breakdown?
a) Acetyl CoA b) Glucose 6-phosphate c) Fructose 1,6-biphosphate d) Pyruvic acid
200. Pick up the wrong statement:
a) Nuclear membrane is present in Monera b) Cell wall is absent in Animalia
c) Protista have photosynthetic and heterophyte modes of nutrition d) Some fungi are edible

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