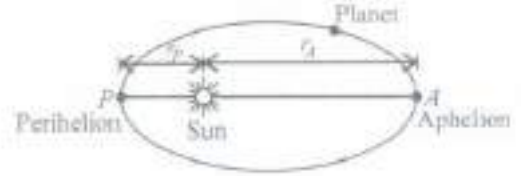
Ravi Maths Tuition Centre

Time : 180 Mins **T5 1** **Marks : 755**

1. A body has weight W_1 in liquid of density ρ_1 and W_2 in a liquid of density ρ_2 . The weight of the body in a liquid of density ρ_3 is
   a) $\frac{w_2(\rho_3-\rho_1)-w_1(\rho_3-\rho_2)}{\rho_2-\rho_1}$ b) $\frac{w_1(\rho_3-\rho_1)-w_2(\rho_3-\rho_2)}{\rho_2-\rho_1}$ c) $\frac{w_1(\rho_3-\rho_1)-w_2(\rho_2-\rho_3)}{\rho_1-\rho_2}$ d) $\frac{w_1(\rho_1-\rho_3)-w_3(\rho_2-\rho_3)}{\rho_2-\rho_1}$
2. The instantaneous values of alternating curfent and voltages in a circuit are given as
   $i = \frac{1}{\sqrt{2}}\sin(100\pi t)$ ampere
   $e = \frac{1}{\sqrt{2}}\sin(100\pi t + \pi/3)$ volt
   The average power in Watts consumed in the circuit is____
   a) 1/4 b) $\frac{\sqrt{3}}{4}$ c) 1/2 d) 1/8
3. A solid sphere falls with a terminal velocity of 10cm/sec in air. If it is allowed to fall in vacuum, the terminal velocity Will
   a) Be equal to 10cm/sec b) Be less to 10cm/sec c) Be more than 10 cm/sec
   d) Never be attained
4. The amount of scattering is inversely proportional to the fourth power of the wavelength. This is known as
   a) Rayleigh scattering b) Maxwell scattering c) Oersted scattering
   d) Reynold scattering
5. In the question number 38, the speed of the particle at this time is :
   a) 16 m s^{-1} b) 26 m s^{-1} c) 36 m s^{-1} d) 46 m s^{-1}
6. The dimensions of Planck's constant are same as :
   a) Energy b) Power c) Momentum d) Angular momentum
7. A diwali rocket is ejecting 50 g of gas/es at a velocity of 400 mls. The acceleration force on the rocket will be:
   a) 22 dyne b) 20 N c) 20 dyne d) 100 N
8. A gas flows with a velocity u along a pipe of cross-sectional area S and bent an angle of 90° at a point A. What force does the gas exert on the pipe at A if its density is ρ?
   a) $\frac{\sqrt{2}Sv}{\rho}$ b) $\sqrt{2}Sv^2\rho$ c) $\frac{\sqrt{3}Sv^2\rho}{2}$ d) $\sqrt{3}Sv^2\rho$
9. The fractional change in internal energy when a gas is cooled from 927°C to 27°C is:
   a) 0.75 b) 4 c) 0.97 d) none of these

10. A planet orbits the sun in an elliptical Nth as shown in the figure. Let V_p and V_A be speed of the planet when at perihelion and aphelion respectively. Which of the following relations is correct?



a) $\frac{r_P}{r_A} = \frac{v_A}{v_P}$ b) $\frac{r_P}{r_A} = \frac{v_P}{v_A}$ c) $\frac{r_P}{r_A} = \sqrt{\frac{v_P}{v_A}}$ d) $\frac{r_P}{r_A} = \sqrt{\frac{v_A}{v_p}}$

11. A stone dropped from the top of the tower touches the ground in 2 sec. The height of the tower is about:
    a) 25 m b) 40 m c) 20 m d) 160 m
12. A shot is fired from a point at a distance of 200 m from the foot of a tower100 m high so that it just passes over it. The direction of shot is:
    a) 30° b) 45° c) 60° d) 70°
13. If V_{gt} V_x and V_m are the speeds of gamma rays, X-rays and microwaves respectively in vacuum then:
    a) $V_g < V_x < V_m$ b) $V_g > V_x > V_m$ c) $Vg > Vx$ d) $V_g = V_x = V_m$
14. In a thermal power station:
    a) chemical energy of burning coal is converted into electrical energy
    b) gravitational energy is converted into electrical energy
    c) potential energy is converted into kinetic energy
    d) geothermal energy is converted into electrical energy
15. The complete destructive interference of two sound waves takes place when the two waves are travelling in the same direction:
    a) with the same frequency and amplitude and are in phase
    b) with the same frequency and amplitude and are in opposite phase
    c) with the same frequency and amplitude
    d) with the same frequency and opposite phase
16. A 5-ampere fuse wire can withstand a maximum power of 1 watt in the circuit. The resistance of the fuse wire is _____.
    a) 0.04 ohm b) 0.2 ohm c) 5 ohm d) 0.4 ohm
17. A hydrogen atom and a Li^{++} ion are both in the second excited state. If l_H and l_{Li} are their respective electronic angular momenta and E_H and E_{Li} their respective energies, then
    a) $l_H > l_{Li}$ and $|E_H| > |E_{Li}|$ b) $l_H = l_{Li}$ and $|E_H| > |E_{Li}|$ c) $l_H = l_{Li}$ and $|E_H| < |E_{Li}|$
    d) $l_H < l_{Li}$ and $|E_H| < |E_{Li}|$
18. The SI unit of electric flux is
    a) $\frac{\text{volt}}{\text{metre}}$ b) $\frac{\text{newton}}{\text{coulomb}}$ c) $\frac{\text{newton} \times \text{metre}^2}{\text{coulomb}}$ d) $\text{volt} \times \text{metre}^2$
19. Bernoulli's principle is not involved in the working or explanation of:

a) movement of spinning ball b) carburetor of automobile

c) blades of a kitchen mixer d) dynamic lift of an aeroplane

20. A 175 m long train is traveling along a straight track with a velocity 72 km^{-1} h. A bird is flying parallel to the train in the opposite direction with a velocity 18 km^{-1} h. The time taken by the bird to cross the train is

a) 35 s b) 27 s c) 11.6 s d) 7 s

21. Which relation is correct for isometric process?

a) ΔQ=ΔU b) ΔW=ΔU c) ΔQ=ΔW d) None of these

22. Which of the following time measuring devices is most precise?

a) A wall clock b) An atomic clock c) A digital watch d) A stop watch

23. To complete one cycle of operation of an ideal Carnot engine, the time taken is:

a) finite b) infinite c) very small d) zero

24. The equation of the propagating wave is, y = 25sin(20t + 5x), where y is displacement. Which of the following statements is not true?

a) The amplitude of the wave is 25 units.

b) The wave is propagating in positive X-direction.

c) The velocity of the wave is 4 units.

d) The maximum velocity of the particles is 500 units.

25. Two coils of self inductances 2 mH and 8 mH are placed so close together that the effective flux in one coil is completely linked with the other. The mutual inductance between these coils is _____.

a) 6 mH b) 4 mH c) 16 mH d) 10 mH

26. The function sinω t- cosωt represents

a) a simple harmonic motion with a period $\frac{\pi}{\omega}$

b) a simple harmonic motion with a period $\frac{2\pi}{\omega}$

c) a periodic, but not simple harmonic motion with a period $\frac{\pi}{\omega}$

d) a periodic, but not simple harmonic motion WIth a period $\frac{2\pi}{\omega}$

27. A water barrel having water upto a depth d is placed on a table of height h. A small hole is made on the wall of the barrel at its bottom. If the stream of water coming out of the hole falls on the ground at a horizontal distance R from the barrel, then the value of d is:

a) $\frac{4h}{R^2}$ b) $4hR^2$ c) $\frac{R^2}{4h}$ d) $\frac{h}{4R^2}$

28. The work done in lifting water from a well 6 m deep using a bucket of mass 0.5 kg and volume 2.5 litres will be:

a) 176.4J b) 4.764×10^3J c) 276.4J d) 3.76×10^2J

29. A rope of negligible mass is wound round a hollow cylinder of mass 3 kg and radius 40 cm. If the rope is pulled with a force of 30 N, then the angular acceleration produced in the cylinder is
a) 15 rad s^{-2} b) 20 rad s^{-2} c) 25 rad s^{-2} d) 30 rad s^{-2}

30. A gas has molar heat capacity C = 37.55 J $mole^{-1}$, K^{-1} in the process PT = constant. The number of degrees of freedom of the molecules of the gas.
a) 6 b) 3 c) 1 d) 5

31. When two sound waves are superimposed, beats are produced when they have
a) Different amplitudes and phases b) Different velocities c) Different phases
d) Different frequencies

32. When p-n junction diode is reverse biased the flow of current across the junction is mainly due to:
a) diffusion of charges b) drift of charges c) depends on the nature of material
d) both drift and diffusion of charges

33. Velocity of sound in vacuum is
a) zero b) 330 m S^{-1} c) 360 m S^{-1} d) 660 m S^{-1}

34. Which of the following has the highest moment of inertia when each of them has the same mass and the same radius?
a) A ring about any of its diameter. b) A disc about any of its diameter.
c) A hollow sphere about any of its diameter.
d) A solid sphere about any of its diameter.

35. The moment of inertia of a thin uniform rod of mass M and length L about an axis passing through its midpoint and perpendicular to its length is I_0, Its moment of inertia about an axis passing through one of its ends and perpendicular to its length is :
a) $I_0 + (ML^2)$ b) $I_0 + (ML^2/2)$ c) $I_0 + (ML^2/4)$ d) $I_0 + (2ML^2)$

36. In Latin, the word vector means
a) magnitude b) direction c) carrier d) cap

37. Assertion : Angle and angular displacement are dimensionless quantities.
Reason : Angle is equal to arc length divided by radius.
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

38. A truck and a car are moving with equal velocity. On applying the brakes both will stop after certain distance, then
a) Truck will cover less distance before rest b) Car will cover less distance before rest
c) Both will cover equal distance d) None

39. An ideal gas system undergoes an isothermal process, then the work done during the process is
a) nRT ln=$\frac{V_2}{V_1}$ b) nRT ln=$\frac{V_1}{V_2}$ c) 2nRT ln=$\frac{V_2}{V_1}$ d) 2nRT ln=$(\frac{V_1}{V_2})$

40. Imagine a light planet revolving around a very massive star in a circular orbit of radius r with a period of revolution T. If the gravitational force of attraction between the planet and the star is proportional to $r^{5/2}$, then the square of the time period will be proportional to:
a) r^3 b) r^3 c) $r^{2.5}$ d) $r^{3.5}$

41. Let $E_n = \frac{-me^4}{8\varepsilon_0^2 n^2 h^2}$ be the energy of the n^{th} level of H-atom. If all the H -atoms are in the ground state and radiation of frequency (E_2 - E_1)/h falls on it, then
a) it will not be absorbed at all b) some of atoms will move to the first excited state
c) all atoms will be excited to the n = 2 state
d) all atoms will make a transition to the n = 3 state

42. Magnetic field intensity at the centre of coil of 50 turns, radius 0.5 m and carrying a current of 2 A is:
a) 0.5 x 10^{-5} T b) 1.25 x 10^{-4} T c) 3 x 10^{-5} T d) 4 x 10^{-5} T

43. The coefficient of static friction, m_3, between block A of mass 2 kg and the table as shown in the figure is 0.2. What would be the maximum mass value of block B so that the two blocks do not move? The string and the pulley are assumed to be smooth and massless.
a) 0.4kg b) 2.0kg c) 4.0kg d) 0.2kg

44. If $\vec{a}$ and $\vec{b}$ are two vectors, then the value of $(\vec{a}+\vec{b}) \times (\vec{a}-\vec{b})$is:
a) $\vec{a} \times \vec{b}$ b) $\vec{b} \times \vec{a}$ c) -2($\vec{b} \times \vec{a}$) d) 2($\vec{b} \times \vec{a}$)

45. What will happen to the weight of the body at the south pole, ifthe earth stops rotating about its polar axis?
a) No change b) Increases c) Decreases but does not become zero
d) Reduces to zero

46. Which of the following have same dimensions?
a) Pressure and density b) Gravitational potential and energy
c) Impulse and momentum d) Stress and strain

47. A convex mirror has focal length 20 cm. If an object is placed 20 cm away from the pole of mirror, then what is the distance between image formed and pole?
a) 40 cm b) 10 cm c) 20 cm d) At infinity

48. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice as
Assertion: The electric field inside a cavity is always zero.
Reason: Charges reside only on the outer surface of a conductor with cavity.

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 both assertion and reason are true but reason is not the correct explanation of assertion

d) If both assertion and reason are false

49. IF both the temperature and the volume of an ideal gas are doubled , the pressure:
a) Increases by a factor of 4 b) is also doubled c) remains unchanged
d) is diminshed by a factor $\frac{1}{4}$

50. A rectangular loop carrying a current i is situated near a long straight wire such that the wire is parallel to the one of the sides of the loop and is in the plane of the loop. If a steady current I is established in wire as shown in figure, the loop will

a) rotate about an axis parallel to the wire.
b) move away from the wire or towards right c) move towards the wire
d) remain stationary.

51. Fill up the following with suitable terms.
(i) Activation energy = Threshold energy __
(ii) Half-life period of zero order reaction = __
(iii) Average rate of reaction = ____
(iv) Instantaneous rate of reaction = _____

a)

(i)	(ii)	(iii)	(iv)
Potential energy	$\frac{0.693}{k}$	$\frac{dx}{dt}$	$\frac{\triangle[A]}{\triangle t}$

b)

(i)	(ii)	(iii)	(iv)
Energy of reactants	$\frac{1}{k}$	$\frac{\triangle[A]}{\triangle t}$	$\frac{dx}{dt}$

c)

(i)	(ii)	(iii)	(iv)
Energy of reaction	$\frac{logk}{t}$	$\frac{\triangle[A]}{\triangle t}$	$\frac{dx}{dt}$

d)

(i)	(ii)	(iii)	(iv)
Average kinetic energy of reactants	$\frac{a}{2k}$	$\frac{\triangle[A]}{\triangle t}$	$\frac{dx}{dt}$

52. Among acetic acid, phenol and *n*-hexanol which one of the following compounds will react with $NaHCO_3$ solution to give sodium salt and CO_2?
a) Acetic acid b) n-hexanol c) Acetic acid and phenol d) Phenol

53. For the chemical reaction
$N_2(g) + 3H_2(g) \rightleftarrows 2NH_3(g)$
The correct option is:

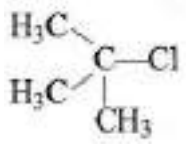
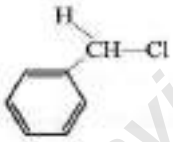
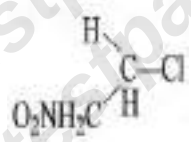
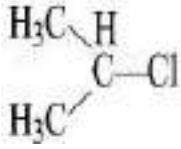
a) $-\frac{d[N_2]}{dt} = 2\frac{d[NH_3]}{dt}$ b) $-\frac{d[N_2]}{dt} = \frac{1}{2}\frac{d[NH_3]}{dt}$ c) $-\frac{d[H_2]}{dt} = 2\frac{d[NH_3]}{dt}$ d) $-\frac{1}{3}\frac{d[H_2]}{dt} = -\frac{1}{2}\frac{d[NH_3]}{dt}$

54. The difference between the electrode potentials of two electrodes when no current is drawn through the cell is called _____.
a) cell potential b) cell emf c) potential difference d) cell voltage

55. The metal oxide reacts with a _____ The oxide is _____ to metal and reducing agent is _____Net Gibbs energy change is_____
a) reducing agent, oxidised, reduced, negative
b) reducing agent, reduced, oxidised, negative
c) oxidising agent, reduced, oxidised, positive
d) reducing agent, reduced, oxidised, positive

56. A metal M readily forms its sulphate MSO_4 which is water soluble. It forms its oxide MO which becomes inert on heating. It forms its insoluble hydroxide $M(OH)_2$ which is soluble in NaOH solution. What would be M?
a) Be b) Ba c) Ca d) Mg

57. Decreasing order of stability of O_2, O_2^-, O_2^+ and O_2^{2-} is :
a) $O_2^+ > O_2 > O_2^- > O_2^{2-}$ b) $O_2^{2-} > O_2^- > O_2 > O_2^+$ c) $O_2 > O_2^+ < O_2^{2-} > O_2^-$
d) $O_2^- > O_2^{2-} > O_2^+ > O_2$

58. In which of the following compounds, the C-Cl bond ionisation shall give most stable carbon ion?
a)  b)  c)  d) 

59. Litharge is chemically:
a) PbO b) PbO_2 c) Pb_3O_4 d) $(CH_3COO)2Pb$

60. The ions $O^{2-}, F^-, Na^+, Mg^{2+}$ and Al^{3+} are isoelectronic. Their ionic radii show :
a) A decrease from O^{2-} to F^- and then increase from Na^+ to Al^{3+}
b) A significant increase from O^{2-} to Al^{3+} c) A significant decrease from O^{2-} to Al^{3+}
d) An increase from O^{2-} to F and then decrease from Na^+ to Al^{3+}

61. If uncertainty in position and momentum are equal, then uncertainty in velocity is :
a) $\frac{1}{2m}\sqrt{\frac{h}{\pi}}$ b) $\sqrt{\frac{h}{2\pi}}$ c) $\frac{1}{m}\sqrt{\frac{h}{\pi}}$ d) $\sqrt{\frac{h}{\pi}}$

62. The equilibrium constant of the reaction:
$Cu_{(s)} + 2Ag^+{}_{(aq)} \rightarrow Cu^{2+}{}_{(aq)} + 2Ag_{(s)}$:
$E^\circ = 0.46$ V it 298 K is
a) 2.0 x 10^{10} b) 4.0 x 10^{10} c) 4.0 x 10^{15} d) 2.4 x 10^{10}

63. In which of the following, functional group isomerism is not possible?
a) Alcohols b) Aldehydes c) Alkyl halides d) Cyanides

64. The value of X-intercept:
a) 9 x 10^4 Hz b) 10.2 x 10^5 Hz c) 8.6 x 10^5 Hz d) 9 x 10^{14} Hz

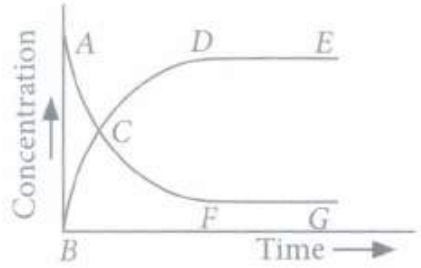
65. In Carius method of estimation of halogen, 0.15 g of an organic compound gave 0.12 g of AgBr.What is the percentage of bromine in the compound?
a) 68.08% b) 34.04% c) 42.1% d) 50%

66. Which of the following has lowest thermal stability?
a) Li_2CO_3 b) Na_2CO_3 c) K_2CO_3 d) Rb_2CO_3

67. Buckminsterfullerene is
a) graphite b) diamond c) C-60 d) quartz

68. The correct order of increasing thermal stability of K_2CO_3, $MgCO_3$, $CaCO_3$ and $BeCO_3$ is:
a) $BeCO_3 < MgCO_3 < K_2CO_3 < CaCO_3$ b) $BeCO_3 < MgCO_3 < CaCO_3 < K_2CO_3$
c) $MgCO_3 < BeCO_3 < CaCO_3 < K_2CO_3$ d) $K_2CO_3 < MgCO_3 < CaCO_3 < BeCO_3$

69. Reversible reaction is studied graphically as shown in the given figure.
$N_2O_4 \rightleftharpoons 2NO_2$, $K_c = 4$



Select the correct statements out of I, II and III.
I. Reaction quotient has maximum value at point A.
II. Reaction proceeds left to right at a point when $[N_2O_4] = [NO_2] = 0.1$ M.
III. K_c = Q when point D or F is reached.
a) I,II b) II,III c) I,III d) I,II,III

70. In the extraction of copper from its sulphide ore, the metal finally obtained by the reduction of cuprous oxide with
a) Iron (ii) sulphide b) Carbon monoxide c) Copper (i) sulphide d) Sulphur dioxide

71. In which of the following the inert pair effect is most prominent?
a) C b) Ge c) Si d) Pb

72. Match the reagents in column I with products formed by reactions with acetone in column II and mark the appropriate choice.

Column I		**Column II**	
(A)	Hydrazine	(i)	$(CH_3)_2C= NNHCONH_2$
(B)	Semicarbazide	(ii)	$(CH_3)_2C=NOH$
(C)	Phenylhydrazine	(iii)	$(CH_3)C = NNH_2$
(D)	Hydroxylamine	(iv)	$(CH_3)C = NNHC_6H_5$

a) (A) $\rightarrow$(1), (B) $\rightarrow$ (ii), (C)$\rightarrow$ (iii), (D)$\rightarrow$(IV)
b) (A) $\rightarrow$(iv), (B)$\rightarrow$ (iii), (C) $\rightarrow$(ii), (D)$\rightarrow$ (i)
c) (A) $\rightarrow$ (iii), (B) $\rightarrow$ (i), (C)$\rightarrow$ (iv), (D) $\rightarrow$ (ii)
d) (A) $\rightarrow$ (ii), (B) $\rightarrow$ (iv), (C) $\rightarrow$ (i), (D) $\rightarrow$ (iii)

73. Natural rubber has :

a) alternate cis-and trans-configuration b) random cis- and trans-configuration
c) all cis-configuration d) all trans-configuration

74. The longest wavelength doublet absorption transition is observed at 589 and 589.6 nm. Energy difference between two excited states is :
a) 3.31×10^{-22} kJ b) 3.31×10^{-22} J c) 2.98×10^{-21} J d) 3.0×10^{-21} kJ

75. Grapes placed in three beakers X, Y and Z containing different type of solutions are shown in figures.

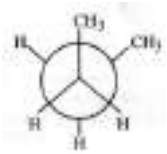
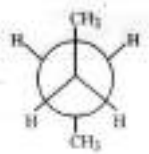
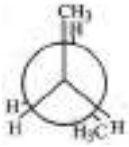
If beaker X contains water, Yand Z contain
a) Y - hypotonic solution, Z - hypertonic solution
b) Y - hypertonic solution, Z - hypotonic solution c) Y and Z- isotonic solutions
d) Y and Z- hypotonic solutions

76. The reaction of hydrogen and iodine monochloride is given as: $H_{2(g)} + 2ICl_{(g)} \longrightarrow 2HCl_{(g)} + I_{2(g)}$ This reaction is of first order with respect to $H_{2(g)}$ and $ICl_{(g)}$, following mechanisms were proposed.
Mechanism A
$H_{2(g)} + 2ICl_{(g)} \longrightarrow 2HCl_{(g)} + I_{2(g)}$
Mechanism B
$H_{2(g)} + ICl_{(g)} \longrightarrow HCl_{(g)} + HI_{(g)}$, slow
$HI_{(g)} + ICl_{(g)} \longrightarrow HCl_{(g)} + I_{2(g)}$, fast
When of the above mechanism(s) can be consistent with the given information about the reaction?
a) Only B b) Both A and B c) Neither A nor B d) Only A

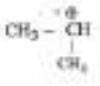
77. Affinity for hydrogen decreases in the group from fluorine to iodine. Which of the halogen acids should have highest bond dissociation enthalpy?
a) HF b) HCl c) HBr d) HI

78. **Assertion:** Molecular mass of KCl calculated on the basis of colligative properties will be lower than the normal molecular mass.
Reason: Experimentally determined molar mass is always lower than the true value.
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

79. In the following the most stable conformation of n-butane is:

a)  b)  c)  d) 

80. Which amongst the following is the most stable carbocation?

a) $\overset{+}{C}H_3$ b) $CH_3\overset{+}{C}H_2$ c)  d) 

81. Refrigeration helps in food preservation by

a) killing the germs b) reducing the rates of biochemical reactions

c) destroying enzyme action d) decreasing the size of bacteria

82. Among KO_2, $KAlO_2$, CaO_2 and NO_2+, unpaired electron is present in:

a) $N0_2^+$ and CaO_2 b) $K0_2$ and KA/O_2 c) KO_2 only d) CaO_2 only

83. How much mass of silver nitrate will react with 5.85 g of sodium chloride to produce 14.35 g of silver chloride and 8.5 g of sodium nitrate if law of conservation of mass is followed?

a) 22.85g b) 108g c) 17.0g d) 28.70g

84. In the separation of Cu^{2+} and Cd^{2+} of IInd group in qualitative analysis of cations, tetrammine copper (II) sulphate and tetrammine cadmium (II) sulphate react with KCN to form the corresponding cyano complexes, which one of the following pairs of the complexes and their relative stability enables the separation of Cu^{2+} and Cd^{2+}?

a) $K_3[Cu(CN)_4]$: less stable and $K_3[Cd(CN)_4]$ more stable

b) $K_3[Cu(CN)_4]$: more stable and $K_3[Cd(CN)_4]$ less stable

c) $K_2[Cu(CN)_4]$: less stable and $K_2[Cd(CN)_4]$ more stable

d) $K_2[Cu(CN)_4]$: more stable and $K_2[Cd(CN)_4]$ less stable

85. Which one of the following statements is not true regarding (+) lactose?

a) On hydrolysis (+) Lactose gives equal amount of D(+) glucose and D(+) galactose.

b)

(+) Lactose is a B-glycoside formed by the union of a molecule of D(+) glucose and a molecule of D(+) galactose.

c) (+) Lactose is a reducing sugar and does not exhibit mutarotation.

d) (+) Lactose, $C_{12}H_{22}O_{11}$ contains 8-OH groups.

86. Which of the following vitamins is water-soluble?

a) Vitamin E b) Vitamin K c) Vitamin A d) Vitamin B

87. The major binding force in diamond, silicon and quartz is

a) electrostatic force b) electrical attraction c) covalent bond force

d) van der Waals force

88. Among the isomers of $C_5H_{11}Cl$, the one which is chiral is

(i) 2, 2-Dimethy-l-chloropropane

(ii) 2-Chloropentane

(iii) 2-Methyl- 2-chlorobutane

(iv) 3-Chloropentane

a) (i) and (ii) only b) (i), (ii) and (iii) only c) (i) and (iii) only d) only (ii)

89. When a substance (A) reacts with water it produces a combustible gas (B) and a solution of substance (C) in water. When another substance (D) reacts with this solution of (C), it also produces the same gas (B) on warming but (D) can also produce gas (B) on reaction with dilute sulphuric acid at room temperature. (A) imparts a deep golden yellow colour to a smokeless flame of Bunsen burner. Then, A, B, C and D, respectively are:
a) Na, H_2, NaOH, Zn b) K, H_2, KOH, Al c) Ca, H_2, $Ca(OH)_2$, Sn
d) CaC_2, C_2H_2, $Ca(OH)_2$, Fe

90. Viscosity of ethanol is 12.0 millpoise. Viscosity of ethanol in S.I system is
a) 1.2 b) 1.2×10^{-3} c) 1.2×10^{-2} d) 1.2×10^{-1}

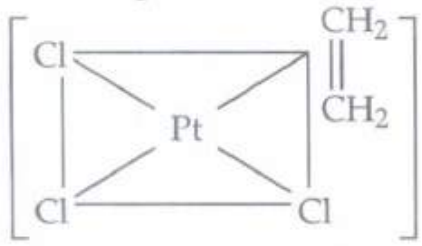
91. The radioactive isotope $^{60}_{27}Co$ which is used in treatment of cancer can be made (n, p) reaction. For this reaction the target nucleus is
a) $^{59}_{28}Ni$ b) $^{59}_{27}Co$ c) $^{60}_{28}Ni$ d) $^{60}_{27}Co$

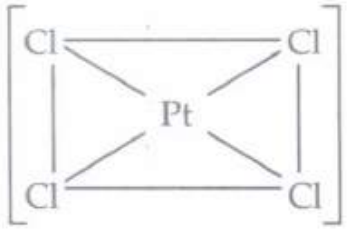
92. The sharp melting point of crystalline solids is due to
a)
a regular arrangement of constituent particles observed over a short distance in the crystal lattice
b)
a regular arrangement of constituent particles observed over a long distance in the crystal lattice
c) same arrangement of constituent particles in different directions
d) different arrangement of constituent particles in different directions

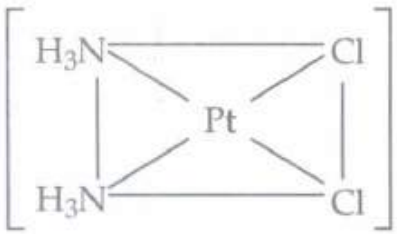
93. Which of the following statements is not true about alkali metals?
a) All alkali metals form oxo salts such as carbonates, sulphates and nitrates
b) The basic character of oxides increases down the group
c)
Carbonates and sulphates of lithium are stable and their stability decreases down the group
d) Solubility of carbonates and sulphates increases down the group

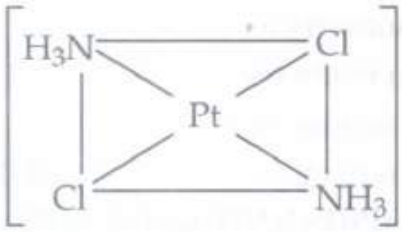
94. Select the correct option regarding the properties of dioxygen?
a) Dioxygen never reacts with metals. b) Dioxygen is diamagnetic in nature.
c) Combination of dioxygen with other elements is highly exothermic process.
d) Dioxygen liquefies at 55 K and freezes at 90 K.

95. Which of the following is considered to be an anticancer species?

a) 

b) 

c) 

d) 

96. Yellow coloured aqueous solution of sodium chromate changes to orange when acidified with sulphuric acid because
    a) H^+ ions convert chromate ions to dichromate ions
    b) H^+ ions react with sodium chromate to give sodium ions which turn solution orange
    c) Cr^{3+} ions are liberated in the solution which turn the solution orange
    d)
    sodium hydroxide is formed during the reaction which imparts orange colour to the solution

97. A solution contains Fe^{2+}, Fe^{3+} and I ions. This solution was treated with iodine at 35°C. Eo for Fe^{3+}/Fe^{2+} is +0.77V and, E° for $0\ I_2/2I^- = 0.536\ V.1$. The favourable redox reaction is:
    a) I_2 will be reduced to I^- b) There will be no redox reaction c) I^- will be oxidised to I_2
    d) Fe^{2+} will be oxidised io F^{3+}

98. The decomposition of dimethyl ether is a fractional order reaction. The rate of reaction is given by rate = $k_{(PCH3OCH3)}^{3/2}$. If the pressure is measured in bar and time in minutes, then what are the units of rate and rate constant?
    a) bar min^{-1}, bar^2 min^{-1} b) bar min^{-1}, $bar^{1/2}$ min^{-1} c) $bar^{-1/2}$ min^{-1}, bar^2 min^{-1}
    d) bar min^{-1}, $bar^{1/2}$ min^{-1}

99. Alkali halides do not show Frenkel defect because
    a) cations and anions have almost equal size
    b) there is a large difference in size of cations and anions
    c) cations and anions have low coordination number
    d) anions cannot be accommodated in voids

100. At Boyle's temperature, compressibility factor Z for a real gas is
    a) 1 b) 0 c) > 1 d) < 1

101. Which of the following structures are haploid in gymnosperms?
    a) Pollen grain, megaspore, embryo b) Pollen grain, megaspore, endosperm
    c) Megaspore, leaf, root d) Leaf, root, integument

102. Tropical plants have a_____ temperature optimum than the plants adapted to temperate climates.

a) lower b) equal c) higher d) none of these

103. The motile bacteria are able to move by :
a) Fimbriae b) Flagella c) Cilia d) Pili

104. Secretion of progesterone by corpus luteum is initiated by
a) testosterone b) thyroxine c) MSH d) LH.

105. In RNA, thymine is replaced by _____
a) adenine b) guanine c) cytosine d) Uracil

106. Select the two correct statements out of the four (a - d) given below about lac operon_____
(i) Glucose or galactose may bind with the repressor and inactivate it
(ii) In the absence of lactose the repressor binds with the operator region
(iii) The z-gene codes for pennease
(iv) This was elucidated by Francois Jacob and Jacque Monod
The correct statements are
a) (ii) and (iii) b) (i) and (iii) c) (ii) and (iv) d) (i) and (ii)

107. Hepato-pancreatic duct opens into the duodenum and carries
a) bile b) pancreatic juice c) both bile and pancreatic juice d) saliva.

108. When a tree grows older which of the following increased rapidly
a) Heart wood b) Sap wood c) Pith d) Cortex

109. Select the correct match:
a) T.H. Morgan-Transduction b) F2 x Recessive parent-Dihybrid cross
c) Ribozyme-Nucieic acid d) G. Mendel-Transformation

110. During secondary growth in a dicot root, cork cambium is formed by the activity of
a) perkyde b) epidermis. c) cortex d) hypodermis

111. Many freshwater organisms cannot live for long in seawater because the surrounding water will be _____ to body cells and _____ may occur.
a) hypertonic, exosmosis b) hypertonic, endosmosis c) hypotonic, exosmosis
d) hypotonic, endosmosis

112. Choose odd one out w.r.t. structure of ecosystem
a) species diversity b) Productivity c) Species d) Stratification

113. Tissue is the group of cells which are
a) Similar in origin, but dissimilar in form and function
b) Similar in origin and form, but dissimilar in function
c) Similar in origin, form and function
d) Dissimilar in origin, but similar in form and function

114. The number of chromosomes in the shoot tip cells of maize plant is 20. The number of chromosomes in the microspore mother cells of the same plant shall be
a) 20 b) 10 c) 40 d) 15

115. Which of the following statements is not correct regarding EcoRI restriction endonuclease enzyme?
a) It is isolated from Escherichia coli RY13
b) Its recognition sequence is 5'-GAATTC-3', 3'-CTTAAG-5'.
c) It produces complementary blunt ends d) None of these

116. Modern detergents contain enzyme preparations of _____.
a) Acidophiles b) Alkaliphiles c) Thermoacidophiles d) Thermophiles

117. Formation of which tissue is example dedifferentiation
a) Interfascicular cambium b) Apical meristem c) Intrafasciculsr cambium
d) Intercalary meristem

118. Photosystem-II occurs in____
a) stroma b) cytochrome c) grana d) mitochondrial surface

119. Menstrual flow occurs due to lack of _____ .
a) FSH b) Oxytocin c) Vasopressin d) Progesterone

120. Which of the following is wrongly matched?
a)
IUI - Semen collected from husband or donor is artificially introduced either into the vagina or into the uterus
b) GIFT - Transfer of embryos with more than 8 blastomeres into the Fallopian tube
c) ICSI - Sperm directly injected into the ovum
d) ZIFT - Transfer of embryos upto 8 blastomeres into the Fallopian tube

121. How many plants among Indigofera, Sesbania, Salvia, Allium, Aloe, mustard, groundnut, radish, gram and turnip have stamens with different lengths in their flowers?
a) Three b) Four c) Five d) Six

122. The most important factor affecting transpiration is
a) Light b) Temperature c) Wind d) Atmospheric humidity

123. Which of the following is a mineralocorticoid?
a) Testosterone b) Progesterone c) Adrenaline d) Aldosterone

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

	ColumnI		ColumnII
A	Mitochondria	(i)	Without membrane
B	Lysosomes	(ii)	Single membrane
C	Ribosomes	(iii)	Double membrane
D	Nucleus		

a)

A	B	C	D
(i)	(ii)	(iii)	(iii)

b)

A	B	C	D
(ii)	(i)	(i))	(ii)

c)

A	B	C	D
(iii)	(ii)	(i))	(ii)

d)

A	B	C	D
(ii)	(iii)	(i)	(iii)

125. Two friends are eating together on a dining table. One of them suddenly starts coughing while swallowing some food. This coughing would have been due to improper movement of
a) epiglottis b) diaphragm c) neck d) tongue

126. Temperature changes in the environment affect most of the animals which are _____.
a) homeothermic b) aquatic c) poikilothermic d) desert living

127. Plant classification as proposed by Carolus Linnaeus was artificial because it was based on
a) only a few morphological characters b) all the possible characters
c) anatomical characters which are adaptive in nature
d) physiological and morphological characters

128. Photoreceptors of earthworm occur on _____ .
a) Clitellum b) many eyes c) Dorsal surface d) lateral sides

129. Guard cells help in_____
a) transpiration b) guttation c) fighting against infection
d) protection against grazing

130. Cell elongation in internodal regions of the green plants takes place due to_____
a) indole acetic acid b) cytokinins c) gibberellins d) ethylene

131. Transfer of pollen grains from the anther to her stigma of another flower of same plant
a) Xenogamy b) Autogamy c) Geitonogamy d) Allogamy

132. Which one of the following is the correct statement regarding the particular psychotropic drug specified?
a) Barbiturates cause relaxation and temporary euphoria
b) Hashish causes after thought perceptions and hallucinations
c) Opium stimulates nervous system and causes hallucinations
d) Morphine leads to delusions and disturbed emotions

133. Examples of tissues that are formed by redifferentiation are
a) secondary xylem b) secondary phloem c) cork cell d) all of these

134. Uric acid is an excretory product of
(a) Cockroach
(b) Sparrow
(c) Terrestrial reptiles
(d) Man
a) (a) & (d) b) (b) & (d) c) (a), (b), & (c) d) (a), (c) & (d)

135. Match the scientists listed under Column 'A' with ideas listed under Column 'B'.

	Coulmn A		**Column B**
A.	Darwin	(i)	Abiogenesis
B.	Oparin	(ii)	Use and disuse of organs
C.	Lamarck	(iii)	Continental drift theory

D.	Wagner	(iv)	Evolution by natural selection

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

136. Match the following columns:

	Column I		**Column II**
A	Golden rice	i	Eli Lily
B	PCR	ii	Herbert boyer
C	Insulin	iii	Kary mullis
D	Recombin	iv	peter Bayer

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

137. In Meselson and Stahl's experiment, heavy isotope ^{15}N was used In the form of
a) $Na^{15}NO_3$ b) $^{15}NH_4Cl$ c) $K^{15}NO_3$ d) $NH_4{}^{15}NO_3$

138. In some viruses, DNA is synthesised by using RNA as template. Such a DNA is called
a) A-DNA b) B-DNA c) cDNA d) rDNA.

139. Hypodermis is_____in sunflower stem and_____in maize stem.
a) parenchymatous, collenchymatous b) collenchymatous, sclerenchymatous
c) sclerenchymatous, collenchymatous d) sclerenchymatous, parenchymatous

140. A point at which illuminated plant parts stop absorbing CO_2 from their environment, is known as
a) CO_2 compensation point b) CO_2 saturation point c) CO_2 optimum point
d) CO_2 limiting point

141. Match the items given in Colunrn I with those in Column- II and select the correct option given below.

Column I			**Column II**
A	Proliferative phase	I	Breakdown of endometrial lining
B	Secretory phase	II	Follicular phase
C	MenstruatioN	III	Luteal phase

a)

A	B	C
II	III	I

b)

A	B	C
I	III	II

c)

A	B	C
III	II	I

d)

A	B	C
III	I	II

142. The disease chikungunya is transmitted by
a) house flies b) Aedes mosquitoes c) cockroach d) female Anopheles

143. Consider the following statements each with one or two blanks.
(A) Lippes loop is a (i) IUD while multiload 375 is a (ii) IUD.
(B) Surgical methods of contraception are also called as (iii) methods.
(C) High MMR and IMR play a significant role in (iv) human population.
Which one of the following options, gives the correct fill ups for the respective blank numbers from (i) to (iv) in the above statements?

a) (i) copper releasing, (ii) non-medicated (iv) decreasing b) (iii) barrier, (iv) increasing

c) (i) non-medicated, (ii) copper releasing, (iv) decreasing

d) (i) copper releasing, (ii) non-medicated, (iii) sterilisation

144. In 1984, Bhopal gas tragedy was caused due to the leakage of _____.
a) potassium isocyanate b) sodium monoxide c) sodium thiocyanate
d) methyl isocyanate

145. Which plant will loss its economic value, if its fruits are produced by induced parthenocarpy?
a) Grape b) Pomegranate c) Orange d) Banana

146. One of the ex situ conservation methods for endangered species is
a) wildlife sanctuaries b) biosphere reserves c) cryopreservation d) national parks.

147. Plasmid has been used as vector because:
a) It is circular DNA which have capacity to join to eukeryotic DNA.

b) it can move between prokaryotic and eukary- otic cells.

c) Both ends show replication. d) It has antibiotic resistance gene.

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

	Column - I		**Column - II**
A.	Simple columnar	(i)	Wall of heart epithelium
B.	Cardiac muscle	(ii)	Bone joints
C.	Adipose tissue	(iii)	Inner lining of stomach and intestine
D.	Hyaline cartilage	(iv)	Below the skin, in the abdomen, buttocks, thighs and breasts
		(v)	Diaphragm

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

149. The carbon dioxide is transported via blood to lungs as___
a) dissolved in blood Plasma b) in the form of carbonic acid only
c) in combination with haemoglobin only
d) carbaminohaemoglobin and as carbonic acid

150. Life cycle of Ectocarpus and Fueus respectively are:
a) Haplontic, Diplontic b) Diplontic, Haplodiplontic c) Haplodiplontic, Diplontic
d) Haplodiplontic, Haplontic

151. Which is most important structural part of the body?
a) Protein b) Carbohydrates c) Lipid d) Nucleic acid

152. Which of the following is the most suitable indicator of S02 pollution in the environment?
a) Lichens b) Conifer c) Algae d) Fungi

153. Ascaris is characterised by
a) Presence of true coelom and metamerism
b) Absence of true coelom but presence of metamerism

c) Presence of neither true coelom nor metamerism
d) Presence of true coelum but absence of metamerism

154. Name the ion responsible for unmasking of active sites for myosin for cross-bridge activity during muscle contraction
a) Calcium b) Magnesium c) Sodium d) Potassium

155. Penguin occurs in _____ .
a) Australia b) Antarctica c) Africa d) America

156. Closed circulatory system occurs in _____ .
a) snail b) cockroach c) cuttle fish d) All of these

157. The joint of radio-ulna with the upper arm is
a) hinge joint b) socket joint c) pivot joint d) none of these

158. A certain patient is suspected to be suffering from acquired immune deficiency syndrome. Which diagnostic technique will you recommend for its detection?
a) ELISA b) MRI c) Ultrasound d) WIDAL

159. Read the foilowing statements carefully.
(i) An electrostatic precipitator removes particulate matter by imposing negative charge on them.
(ii) Catalytic converters convert unburnt hydrocarbons into CO_2 and water.
(iii) Peroxyacyl nitrates (PAN) is a secondary pollutant.
(iv) DDT is a non-biodegradable pollutant.
Which of the above statements are incorrect?
a) (i) and (ii) b) (iii) and (iv) c) (i) and (iii) d) None of these

160. One of the important consequences of geographical isolation is:-
a) Random creation of new species b) No change in the isolated fauna
c) Preventing Speciation d) Speciation through reprouctive isolation

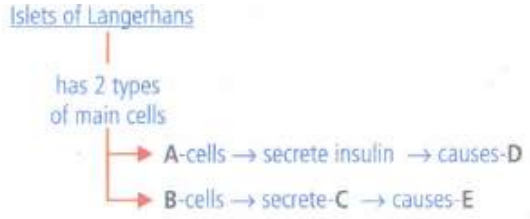
161. The important site for the formation of glycoproteins and glycolipids is :
a) Vacuoles b) Plastids c) Lysosome d) Golgi apparatus

162. Extranuclear inheritance is due to the presence of genes In
a) mitochondria and chloroplasts b) nucleus and mitochondria
c) nucleus and chloroplasts d) endoplasmic reticulum and mitochondria

163. In **Funaria**, the haploid structure is
a) protonema b) capsule c) columella d) seta.

164. Bull semen of artificial insemination is stored in
a) Ice b) Liquid carbon dioxide c) Liquid oxygen d) Liquid nitrogen

165. Select the option that correctly identifies A to E in the given flow chart.



a)

A	B	C	D	E
α	β	Glucagon	Hyperglycaemia	Hypoglycaemia

b)

A	B	C	D	E
β	α	Cortisol	Hypoglycaemia	Hypoglycaemia

c)

A	B	C	D	E
β	α	Cortisol	Hypoglycaemia	Hypoglycaemia

d)

A	B	C	D	E
β	α	Glucagon.	Hypoglycaemia	Hypoglycaemia

166. Ability of an environment to support a population is called its
a) Biotic potential b) Purifying capacity c) Carrying capacity
d) Environmental resistance

167. Analgesic drugs_____
a) form tissues b) relieve pain c) relieve fatigue d) cause pain

168. What are those structures that appear as beads-on-string in the chromosomes when viewed under electron microscope?
a) Genes b) Nucleotides c) Nucleosomes d) Base pairs

169. The primary structure of a protein molecule has
a) two ends b) one end c) three ends d) no ends

170. The crops engineered for glyphosate are resistant and tolerant to _____.
a) Bacteria b) Insects c) Herbicides d) Fungi

171. Autecology is the
a) relation of heterogenous population to its environment
b) relation of an individual to its environment
c) relation of a community to its environment d) relation of a biome to its environment.

172. In crustaceans, the excretory functions are performed by:
a) Antennal glands b) green glands c) Both (1) & (2) d) Malpighian tubules

173. Which of the following is not the function of insulin?
a) Increases glycogenesis b) Increases glycogenolysis
c)
Promote oxidation of glucose and conversion of glucose into glycogen in muscle as well as liver cells
d) Increase uptake of amino acids by liver and muscles

174. The characteristic(s) common to urea, uric acid and ammonia is/are
(i) They are nitrogenous wastes.
(ii) They all need very large amount of water for excretion.
(iii) They are all equally toxic.
(iv) They are produced in the kidneys.
a) (i), (iii) and (iv) b) (i) only c) (i) and (iii) d) (i) and (iv)

175. If the head of cockroach is removed, it may live for few days because _____ .

a)

The head holds a small proportion of a nervous system while the rest is situated along the ventral part of its body.

b)

The head holds a 1/3rd of a nervous system while the rest is situated along the dorsal part of its body.

c)

The supra-oesophageal ganglia of the cockroach are situated in ventral part of abdomen.

d) The cockroach does not have nervous system.

176. Andalusian fowls have two pure forms - black and white. If black forms (BB) and white forms (WW) are crossed, F_1 individuals appear blue coloured (BW), due to Incomplete dominance. Which of the following would be an outcome of a cross between black form and blue form?

a) 1 Black: 2 Blue: 1 White b) 2 Black: 1 Blue c) 1 Black: 2 Blue d) 1 Black: 1 Blue

177. Which one of the following characteristics is common both in humans and adult frogs?.

a) Ureotelic mode of excretion b) Four-chambered heart c) Internal fertilisation

d) Nucleated RBCs.

178. Which of the following statement is not true of two genes that show 50% recombination frequency?

a)

If the genes are present on the same chromosome, they undergo more than one crossovers in every meiosis

b) The genes may be on different chromosomes c) The genes are tightly linked

d) The genes show independent assortment

179. Gibberellins promote the formation of A flowers on genetically B plants in Cannabis whereas ethylene promotes formation of C flowers on genetically D Cannabis plants.

a)

A	B	C	D
male	female	female	male

b)

A	B	C	D
male	male	female	female

c)

A	B	C	D
female	male	male	female

d)

A	B	C	D
female	female	male	male

180. From _____ acid, more than 17 amino acids are formed through transamination.

a) aspartic b) glutamic c) acetic d) pyruvic

181. Identify the incorrectly matched pair.

a)

Pair of skeletal parts	Category
Sternum and ribs	Axial skeleton

b)

Pair of skeletal parts	Category
Clavicle and glenoid cavity	Pelvic girdle

c)

Pair of skeletal parts	Category
Humerus and ulna	Appendicular skeleton

d)

Pair of skeletal parts	Category
Malleus and stapes	Ear ossicles

182. Select the correct statement regarding integrated organic farming.

a)
It is a cyclical, zero waste procedure where waste products from one process are cycled in as nutrients for other processes.

b) In this process, industrial wastes is used to manufacture product such as polyblend

c) In this process, chemical fertilisers are used to increase yield d) both (a) and (c)

183. Analogous structure of phylloclade is

a) Pitcher b) phyllode c) cladode d) Thorn

184. Which sugar does not give Benedict's test?

a) Glucose b) Maltose c) Fructose d) Sucrose

185. If the Neanderthals are not the direct ancestors of humans, is it still possible for humans and Neanderthals to be related?

a) Yes, because we share a common ancestor

b) Yes, but only if humans and Neanderthals could have interbred

c) No, because the human evolutionary tree is strictly linear and without branches.

d)
No, because this means that Neanderthals evolved from an entirely different branch of organisms than humans did.

186. What does the shape of the given age pyramids (A to C) reflect about the growth status of populations?

a)

A	B	C
Declining	Stable	Expanding

b)

A	B	C
Stable	Expanding	Declining

c)

A	B	C
Expanding	Stable	Declining

d)

A	B	C
Declining	Expanding	Stable

187. The transparent lens in the human eye is held in its place by _____ .

a) smooth muscles attached to the iris b) ligaments attached to the iris

c) ligaments attached to the ciliary body

d) smooth muscles attached to the ciliary body

188. The most efficient locomotion in protists is through:-
a) Pseudopodia b) Flagella c) Cilia d) Tentacles

189. In which organisms external fertilization occurs:-
a) Echinodermata/Moss b) Hemichordata/Fern c) Reptilia/Gymnosperm
d) Amphibia/Algae

190. The ecological pyramid of numbers in pond ecosystem is -
a) Upright b) Inverted c) May upright or Inverted d) First upright then Inverted

191. Function of restriction endonuclesase enzyme is:
a) Useful in genetic engineering b) protects the bacterial DNA againest foreign DNA
c) Helpful in transcription d) Helpful in protein synthesis

192. Cells which are not dividing are likely to be at
a) G_1 b) G_2 c) G_0 d) S phase

193. Monographs are concerned with:
a) Information of any species only b) Information of any genus only
c) Information of any family only d) Information of any family only

194. A sewage treatment process in which a part of decomposer bacteria present in the wastes is recycled into the starting of the process is called as
a) primary treatment b) activated sludge treatment c) tertiary treatment
d) none of these.

195. **Assertion:** In pigeons, females are heterogametic and males are homogametic.
Reason: In pigeons, females have ZW sex chromosomes and males have ZZ sex chromosomes.
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

196. The principal tail piece of human sperm shows the microtubular arrangement of
a) 7 + 2 b) 9 + 2 c) 11 + 2 d) 13 + 2

197. The pioneer country in the production of 'Fuel alcohil' is
a) Japan b) Brazil c) Saudi Arabia d) India

198. Diploid chromosome number in humans is____
a) 46 b) 44 c) 48 d) 42

199. Which of the following is a non-symbiotic nitrogen fixing prokaryote?
a) Azotobacter b) Clostridium c) Beijerinckia d) All of these

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

Column I	**Column II**

A. Gregor J. Mendel	(i)Chromosomal theory of inheritance
B. Sutton and Boveri	(ii)Laws of inheritance
C. Henking	(iii)Drosophila
D. Morgan	(iv)Discovered X-body

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