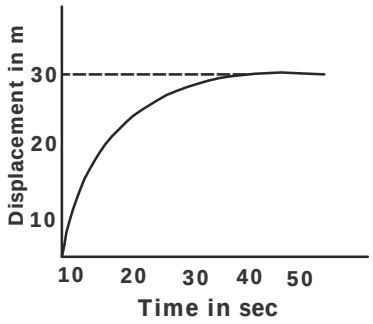
01. The worong unit conversion among the following is
(1) 1 angstrom $= 10^{-10}$ m
(2) 1 fehmi $= 10^{-15}$ m
(3) 1 light year $= 9.46 \times 10^{15}$ m
(4) 1 astronomical unit $= 1.496 \times 10^{-11}$ m

02. Choose the wrong statement.
(1) the motion of an object along a straight line is a rectilinear motion
(2) The speed in general is less than the magnitude of the velocity
(3) The slope of the displacement-time grpha gives the velocity of the body
(4) The area under the velocity-time graph gives the displacement of the body.

03. The displacement of a particles as a function of time is shown in figure. It indicates that



(1) The velocity of the particle is constant throughout
(2) The acceleration of the particle is constant throughout
(3) The particle starts with a constant velocity and is accelerated
(4) the motion is retartded and finally the particle stops

04. The range of a the projectile is R when the angle of projection is 40^0. For the same velocity of projection and range, the other possible angle of projection is
(1) 45^0 (2) 50^0 (3) 60^0 (4) 40^0

05. The scalar quantity among the following is
(1) weight of body
(2) temperature gradient
(3) magnetic field strength
(4) elecric potential

06. Which one of the following motions on a smooth plane surface does not involve force ?
(1) Accelerated motion in a straight line
(2) Retarted motion in a stragith line.
(3) Motion with constant momentum along a straight line.
(4) Motion along a straight line with varying velocity.

07. Pick out the wrong statement
(1) Newton's laws of motion hold good for both inertial and non-inertial frames
(2) During explosion, linear momentum is conserved
(3) Area under force-time graph gives the magnitude of impulse
(4) Force of friction is zero when no driving force is applied

08. Two bodies of different masses are moving with same kinetic energy. Then the ratio of their momenta is equal to the ratio of their
(1) masses (2) square of masses
(3) square of root masses (4) inverse of masses

09. Two bodies of masses 1 kg and 2 kg moving with same velocities are stopped by the same force. Then the ratio of their stopping distances is
(1) 1 : 2 (2) 2 : 1
(3) $\sqrt{2} : 1$ (4) $1 : \sqrt{2}$

10. If two circular discs A and B are of same mass but of radii r and 2r respectively, then the moment of inertia of A is
(1) the same as that of B
(2) twice that of B
(3) four times that B
(4) one-fourth that of B

11. Choose the wrong statement.
(1) The centre of mass of a uniform circular ring is at its geometrical centre.
(2) Moment of inertia is a scalar quantity
(3) Radius of gyration is a vector quantity
(4) For same mass and radius, the moment of inertia of a ring is twice that of a uniform disc

12. Orbital velocity of earth satellite does not depend on
(1) Mass of the earth
(2) mass of the satellite
(3) radius of the orbit
(4) acceleration due to gravity

13. Gravitational potential energy of a body of mass m at a height of h above the surface of earth (M = mass of the earth, R = radius of earth) is

(1) $\frac{GMm}{h}$ (2) $\frac{GMm}{(R+h)}$

(3) $\frac{-GM}{(R+h)}$ (4) $-\frac{GMm}{(R+h)}$

14. A boat carrying a few number of big stones floats in a water tank. If the stones are unloaded into water, the water level
(1) rises till half the number of stones are unloaded and then begins to fall
(2) remains unchanged
(3) rises
(4) falls

15. Two wires of same length and same material but of radii r and 2 r are stretched by forces F and f respectively to produce equal elongation. The ratio F to f is
(1) 1 : 1 (2) 1 : 2
(3) 2 : 1 (4) 1 : 4

16. Choose the correct statement
(1) Terminal velocities of rain drops are proportional to square of their radii
(2) Water proof agents decrease the angle of contact between water and fibres.
(3) Detergents increase the surface tension of water
(4) Hydraulic machines work on the principle of Torricelli's law

17. If ΔU represents the increase in internal energy and W the work done by the thermodynamic system, then
(1) $\Delta U = -W$ is an isothermal process
(2) $\Delta U = W$ is an isothermal process
(3) $\Delta U = -W$ is an adiabatic process
(4) $\Delta U = W$ is an adiabatic process

18. If the energy input ot a Carnot engine is thrice the work it perorms then, the fraction of energy rejected to the sink is

(1) $\frac{1}{3}$ (2) $\frac{1}{4}$ (3) $\frac{2}{5}$ (4) $\frac{2}{3}$

19. The ratio of rms speed of an ideal gas molecules at pressure P to that at pressure 2P is
(1) 1 : 2 (2) 2 : 1
(3) $1:\sqrt{2}$ (4) $\sqrt{2}:1$

20. A pendulum of time period 2s on earth is taken to another planet whose mass and diameter are twice that of earth. Then its time period on the planet is (in second)

(1) $\frac{1}{2}$ (2) $2\sqrt{2}$

(3) $\frac{1}{\sqrt{2}}$ (4) 2

21. The physical quantity which remains constant in simple harmonic motion is
(1) Kinetic energy (2) potential energy
(3) restoring force (4) frequency

22. Sound waves
(1) can be polarized
(2) can exhibite diffraction
(3) can travel in free space
(4) travel slower in than liquids in air

23. If a closed organ pipe has the same third harmonic frequency as that of an open organ pipe, then their respectively lengths are in the ratio
(1) 1 : 1 (2) 1 : 2
(3) 1 : 4 (4) 3 : 4

24. A particle of mass 1.96×10^{-15} kg is kept in equilibrium between two horizontal metal plates having potential difference of 400 V separated apart by 0.02 m. Then the charge on the particle is (e = electronic charge, $g = 9.8 m/s^2$)

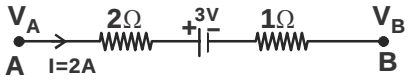
(1) $3e$ (2) $6e$
(3) $2e$ (4) $5e$

25. Two small spherical shells A and B are given positive charge of 9C and 4C respectively and placed such that their centres are separated by 10m. If P is a point in between them where the electric field intensity is zero, then the distance of the point P from the centre of A is
(1) 5m (2) 6m
(3) 7m (4) 8 m

26. Identify the wrong statement
(1) Charge is a vector quantity
(2) Current is a scalar quantity
(3) Charge can be quantised
(4) Charge is additive in nature

27. When the rate of flow of charge through a metallic conductor of non uniform cross section is uniform, then the quantity that remain constant along the conductor is
(1) Current density (2) electric field
(3) electric potential (4) current

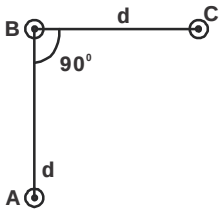
28. The potential difference $(V_A - V_B)$ between the points A and B in the given figure is



(1) –3V (2) +3V
(3) +6V (4) +9V

29. The slope of the graph showing the variation of potential difference V on x-axis and current on y-axis gives conductor's
(1) resistance (2) resistivity
(3) reciprocal of resistance
(4) conductivity

30. An arrangement of three parallel straight wires placed perpendicular to plane of paper carrying same current 'I' along the same direction as shown in figure. Magnitude of force per unit length on the middle wire 'B' is given by



(1) $\frac{2\mu_0 I^2}{\pi d}$

(2) $\frac{\sqrt{2}\mu_0 I^2}{\pi d}$

(3) $\frac{\mu_0 I^2}{\sqrt{2}\pi d}$ (4) $\frac{\mu_0 I^2}{2\pi d}$

31. When the temperature of a magnetic material decreases, the magnetization
(1) decreases in a diamagnetic material
(2) decreases in a paramagnetic matrial
(3) decreases in a ferromagnetic material
(4) remain the same in a diamagnetic material

32. The magnetic field at the centre of a circular coil carrying current I ampere is B. If the coil is bent into smaller circular coil of n turns, its magnetic field at he centre is B'. The ratio between B' and B is
(1) 1 : 1 (2) n : 1
(3) $n^2 : 1$ (2) $2n : 1$

33. The magnetic flux linked with a circuit of resistance R changes by $\Delta\phi$ in a time Δt. Then the total quantity of charge Q that passes at any point in the circuit during time Δt is

(1) $\frac{\Delta\phi}{R}$ (2) $\frac{1}{R}\frac{\Delta\phi}{\Delta t}$

(3) $R\frac{\Delta\phi}{\Delta t}$ (4) $\frac{\Delta\phi}{\Delta t}$

34. In an LCR series resonant circuit, the capacitance is changed from C to 4C. For the same resonant frequency, the inductance should be changed from L to

(1) $2L$ (2) $\frac{L}{2}$ (3) $4L$ (4) $\frac{L}{4}$

35. Changing magnetic fields can set up current loops in nearby metal bodies and the currents are called as
(1) eddy currents
(2) Flux currents
(3) alternating currents
(4) leakage currents

36. The energy of the em waves is of the order of 15 keV. To which part of the spectrum does a belong ?
(1) Ultraviolet rays (2) γ – rays
(3) X-rays (4) Infra-red rays

37. The magnifying power of a convex lens of focal length 10 cm when the image is formed at the near point is
(1) 6 (2) 5.5
(3) 4 (4) 3.5

38. The waves that require is medium to travel is
(1) infrared radiation
(2) ultraviolet radiation
(3) visible light
(4) Ultrasound

39. The intensity at the maximum in a Young's double slit experiment is I_0. Distance between two slits is $d = 5\lambda$, where λ is the wavelength of light used in the experiment. What will be the intensity in front of one of the slits on the screen placed at a distance D = 10d ?

(1) $\frac{3}{4}I_0$ (2) $\frac{I_0}{2}$ (3) I_0 (4) $\frac{I_0}{4}$

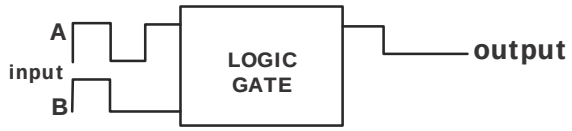
40. The ratio of the respective de Broglie wavelengths associated with electrons accelerates from rest with the voltage 100V, 200V and 300 V is
(1) 1 : 2 : 3 (2) 1 : 4 : 9
(3) $1:\frac{1}{\sqrt{2}}:\frac{1}{\sqrt{3}}$ (4) $1:\frac{1}{2}:\frac{1}{3}$

41. A radioactive source of half-life 2 hours emits radiation of intensity which is 64 times the permissible safe level. The minimum time in hours after which it would be possible to work safely with the source is
(1) 12 (2) 8
(3) 6 (4) 24

42. Nuclear fusion is not found in
(1) thermonuclear reactor
(2) hydrogen bomb
(3) energy of production in sun
(4) atom bomb

43. The approximate ratio of nuclear mass densities of $^{197}_{79}Au$ and $^{107}_{47}Ag$ nuclei is
(1) $197:107$ (2) 47 : 79
(3) 79 : 47 (4) 1 : 1

44. Identify the gate used in the following diagram



(1) AND (2) OR
(3) NAND (4) NOR

45. Acceptor level in p-type semiconductors lies
(1) nearer to the conduction band
(2) at the middle of conduction band and valence band
(3) within the valecne band
(4) nearer to the valence band

46. The wavelength of H_α line of balmer series is $X\ \overset{0}{A}$. What is the wavelength of H_β of Balmer series
(1) $\frac{108X}{80}\overset{0}{A}$ (2) $\frac{80X}{108}\overset{0}{A}$
(3) $\frac{80}{108X}\overset{0}{A}$ (4) $\frac{108}{80X}\overset{0}{A}$

47. In which of the following arrangments the sequence is not strictly according to the property written against is
(1) $CO_2 < SiO_2 < SnO_2 < pbO_2$: Increasing oxidising power
(2) HF < HCl < HBr < HI : Increasing acidic strength
(3) $NH_3 < PH_3 < AsH_3 < SbH_3$: Increasing basic strength
(4) $B < C < O < N$: Increasing first ionization enthalpy

48. Ammonium nitrate decomposes on Heating into
(1) Ammonia and nitric acid
(2) Nitrous oxide and water
(3) Nitrogen, Hydrogen, and ozone
(4) Nitric oxide, Nitrogen dioxide and hydrogen

49. IUPAC name of $\left[Pt(NH_3)(Br)(NO_2)Cl\right]Cl$ is
(1) Amminechlorobromonitroplatinum (iv) chloride
(2) Triamminebromonitrochloroplatinum(iv) chloride
(3) Amminebromochloronitroplatinum (iv) chloride
(4) Amminenitrochlorobromoplatinum (iv) chloride

50. Match list I (molecules) with list II (Boiling point) and select the correct answer

List –I	List – II
(A) NH_3	(i) 290 K
(B) PH_3	(ii) 211 K
(C) AsH_3	(iii) 186 K
(D) SbH_3	(iv) 264 K
(E) BiH_3	(v) 240K

	A	B	C	D	E
(1)	iii	ii	v	iv	i
(2)	v	iii	ii	iv	i
(3)	i	iv	v	ii	iii
(4)	i	ii	iii	iv	v

51. Incorrect statement in electrolysis of Al_2O_3 by Hall Heroult process is
(1) Cryolite lowers the melting point of Al_2O_3 and increases the conductance
(2) Al is obtained at cathode and CO_2 at anode
(3) CaF_2 decreases the viscosity of electrolytic solution
(4) MgF_2 can be used in place of CaF_2

52. The correct order of second ionisation potential of Si, P, S and Cl is
(1) Si > P > S > Cl (2) S > P > Cl > Si
(3) S > Cl > P > Si (4) Cl > S > P > Si

53. Dissolving 120g of urea in 1000g of water gave a solution of density 1.15g/ml. The molarity of the solution is
(1) 1.78 m (2) 2.00 m
(3) 2.05 m (4) 2.22 m

54. When a small quantity of $FeCl_3$ solution is added to the fresh precipitate of $Fe(OH)_3$, a colloidal sol is obtained. The process through which this sol is formed is known as
(1) Exchange of solvent
(2) Chemical double decomposition
(3) Electrophoresis
(4) Peptisation

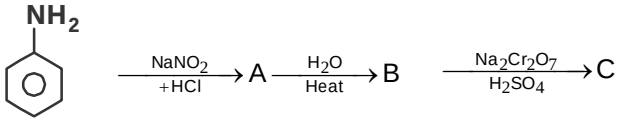
55. The standard emf of a cell involving one electron change is found to be 0.591V at 25^0C. The equilibrium constant of the reaction is
(1) 10^{30} (2) 10^{10}
(3) 10^5 (4) 10^1

56. Which of the following statements are correct :
(i) Hydration energy of Sr^{2+} is greater than that of Be^{2+}
(ii) $CaCO_3$ decomposes at a higher temperature than $BaCO_3$
(iii) $Ba(OH)_2$ is a stronger base than $Mg(OH)_2$
(iv) $SrSO_4$ is less soluble in water than $CaSO_4$
(1) III and IV (2) I and III
(3) I and IV (4) II and III

57. What is angular momentum of an electron in Bohr's hydrogen atom whose energy is –3.4eV
(1) $\frac{h}{2\pi}$ (2) $\frac{h}{\pi}$
(3) $\frac{3h}{2\pi}$ (4) None

58. Which is the functional isomer
(a) $CH_3-CH_2-\overset{\overset{O}{\|}}{C}-CH_2-CH_3$ & $CH_3-CH_2CH_2-\overset{\overset{O}{\|}}{C}-H$
(b) CH_3CH_2COOH & $CH_3-\overset{\overset{O}{\|}}{C}-OCH_3$
(c) $CH_3CH=C=CH_2$ & $CH_3-CH_2C\equiv CH$
(d) $CH_3-CH_2-CH_2-OH$ & CH_3CH_2COOH
(1) b, c, d only (2) a, b, c, d
(3) c, d only (4) b, c only

59. In acidic medium MnO_4^- is converted to Mn^{+2} when acts as an oxidising agent. The quantity of electricity required to reduced 0.05 mole of MnO_4^- would be
(1) 0.01 F (2) 0.05 F
(3) 0.25 F (4) 0.15 F

60. 
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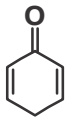
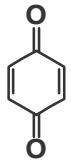
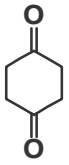
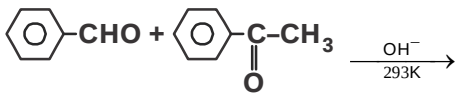
(1) 
(2) 
(3) 
(4) 

61. 
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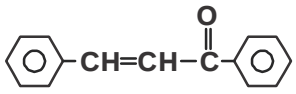
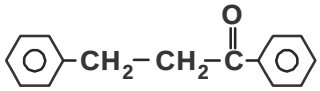
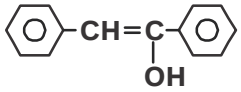
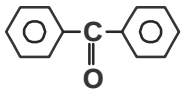
(1) 
(2) 
(3) 
(4) 

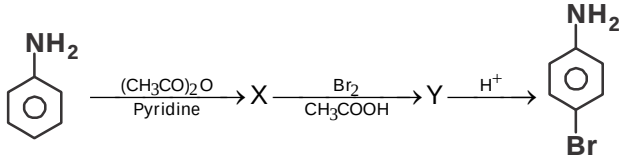
62. Monomer of PHBV is :-
(1) 2–hydroxy butanoic acid and 4–Hydroxy Hexanoic acid
(2) 2–Hydroxy pentanoic acid and 3–Hydroxy pentanoic acid
(3) 3–Hyroxybutanoic acid and 3–hydroxy pentanoic acid
(4) None

63. Which is correct statement
(a) Number of lone pair in vanillin is four
(b) IUPAC name of mesityl oxide is 4–methylpent 3–en–2–one
(c) methanol is gas at room temperature
(d) ethanol is a volatile liquid
(1) a, b, c, d
(2) b, c only
(3) a, b, c only
(4) b, c, d only

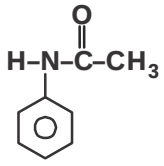
64. Which is correct statement
(a) Acetylation of salicylic acid produced paracetamol
(b) Acetylation of salicylic acid produce aspirin
(c) Aspirin possesses anti inflammatory properties
(d) Aspirin possesses anti pyretic properties
(1) a, b, d (2) b, c, d
(3) only b, d (4) a, b, c, d

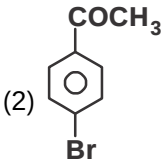
65. $C_2H_2 \xrightarrow[HgSO_4\ 1\%]{H_2SO_4\ dil} A \xrightarrow{[O]} B \xrightarrow{NaOH} C \xrightarrow{NaOH/CaO} D$ "D" is

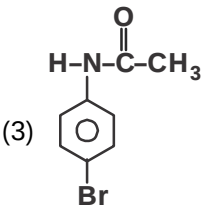
(1) CH_4 (2) $CH_3 - CH_3$
(3) C_3H_8 (4) C_4H_{10}

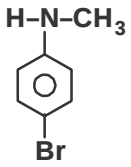
66. 

'Y' is :-

(1) 

(2) 

(3) 

(4) 

67. In the fuel cell methanol is used as fuel and oxygen gas is used as an oxidizer, the reaction is :

$$CH_3OH(\ell) + \frac{3}{2}O_2(g) \rightarrow CO_2(g) + 2H_2O(\ell)$$

At 298 K standard Gibbs energies of formation for $CH_3OH(\ell)$, $H_2O(\ell)$ and $CO_2(g)$ are $-166.2, -237.2$ and $-394.4 kJ\ mol^{-1}$ respectively. If standard enthalpy of combustion of methanol is $-726\,kJ\ mol^{-1}$ efficiency of the fuel cell will be
(1) 80 % (2) 87 %
(3) 92 % (4) 97 %

68. A chemical reaction was carried out at 300K and 280 K. The rate constants were found to be K_1 and K_2 respectively then
(1) $K_2 = 4K_1$ (2) $K_2 = 2K_1$
(3) $K_2 = 0.25K_1$ (4) $K_2 = 0.5K_1$

69. The emf of a Daniel cell at 298 K is E_1

$$Zn \mid \underset{(0.01M)}{ZnSO_4} \parallel \underset{(1.0M)}{CuSO_4} \mid Cu$$

when the concentration of $ZnSO_4$ is 1.0 M and that of $CuSO_4$ is $0.01M$ emf changed to E_2. What is the relationship between E_1 and E_2
(1) $E_2 = 0 \neq E_1$ (2) $E_1 > E_2$
(3) $E_1 < E_2$ (4) $E_1 = E_2$

70. The vapour pressure of ethanol and methanol are 44.5 mm Hg and 88.7 mm Hg. Respectively. An ideal solution is formed at the same temperature by mixing 60g of ethanol and 40g of methanol calculate the total vapour pressure of the solution and the mole fraction of methanol in the vapour

(1) 55.11 mm Hg, 0.732

(2) 66.11mm Hg, 0.656

(3) 77.22 mm Hg, 0.342

(4) 33.11mm Hg, 0.656

71. A weak acid HA has $K_a = 10^{-6}$, what would be the molar ratio of this acid and its salt with strong base so that pH of the buffer solution is 5

(1) 10 (2) $\frac{1}{10}$

(3) 1 (4) 2

72. Which will give the usual test for iron

(1) $(NH_4)_2SO_4 . Fe_2(SO_4)_3 . 24H_2O$

(2) $K_4[Fe(CN)_6]$

(3) $Fe(CO)_5$

(4) All of these

73. A solution of 'X' mole of sucrose in 100 gm of water freezes at -0.2^0C as ice separates the freezing point goes down to -0.25^0C. How many grams ice would have separated.

(1) 18 gm (2) 80 gm

(3) 30 gm (4) 20 gm

74. Molecular weight of $KBrO_3$ is M. What is its equivalent weight. If the reaction

$BrO_3^- \longrightarrow Br^-$ acidic medium

(1) M (2) M / 3

(3) M / 6 (4) M / 2

75. 1g of an organic compound containing Nitrogen an Kjeldahl's method required 40 ml of N/5 H_2SO_4 for neutralization of NH_3. Percentage of nitrogen will be

(1) 2.24 % (2) 1.12 %

(3) 22.4 % (4) 11.2 %

76. In AB type solid (NaCl type structure) all the atoms along a body diagonal has been remove. What will be the the empirical formula of remaining unit cell ?

(1) A_2B_3 (2) A_5B_4

(3) A_4B_5 (4) A_3B_2

77. If $S + O_2 \rightarrow SO_2, \Delta H = -298.2\,kJ\ mole^{-1}$

$SO_2 + \frac{1}{2}O_2 \rightarrow SO_3, \Delta H = -98.7\,kJ\ mole^{-1}$

$SO_3 + H_2O \rightarrow H_2SO_4,\ \Delta H = -130.2 kJ\,mole^{-1}$

$H_2 + \frac{1}{2}O_2 \rightarrow\ H_2O, \Delta H = -287.3\,kJ\ mole^{-1}$

The enthalpy of formation of H_2SO_4 at 298 K will be

(1) -814.4 kJ mol^{-1} (2) $+814.4$ kJ mol^{-1}

(3) -650.3 kJ mol^{-1} (4) $+650.3$ kJ mol^{-1}

78. If the radius of Cl^{-1} ion is 181 pm and the radius of Na^+ is 101 pm then the edge length of unit cell is

(1) 282 pm (2) 564 pm

(3) 285.71pm (4) 512 pm

79. If for $2A_2B(g) \rightleftharpoons 2A_2(g) + B_2(g), K_p =$ total pressure (at equilibrium) and starting the dissociation from 4 mol. of A_2B, then incorrect statement is

(1) Degree of dissociation of A_2B will be $(2/3)$

(2) Total number of moles at equilibrium will be $16/3$

(3) At equilibrium the number of moles of A_2B are equal to number of moles of B_2

(4) At equilibrium the number of mole of A_2B are equal to the number of moles of A_2

80. The incorrect order is

(1) HF < HCl < HBr < HI : acidic strength

(2) HF > HCl > HBr > HI : Thermal stability

(3) HF > HCl > HBr > HI : Boiling point

(4) HF > HCl > HBr > HI : Bond dissociation enthalpy

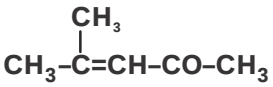
81. Tranquilizers is

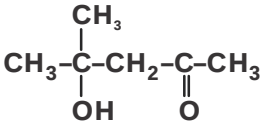
(1) Heroin (2) Iproniazid

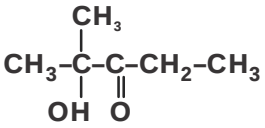
(3) Prontosil (4) Azodye

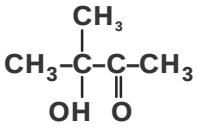
82. $CH_3 - C \equiv N + CH_3MgBr \xrightarrow[H_3O^+]{ether} A \rightleftharpoons$ $\xrightarrow{Ba(OH)_2}$

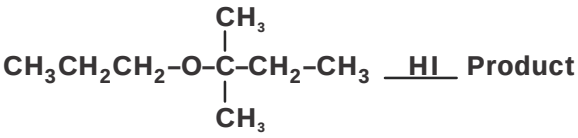
$B \xrightarrow{\Delta} C$

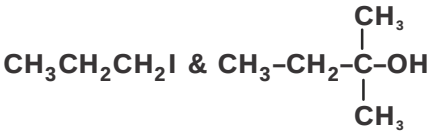
(1) 

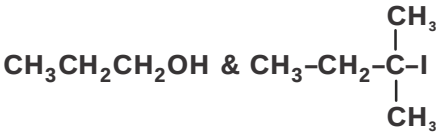
(2) 

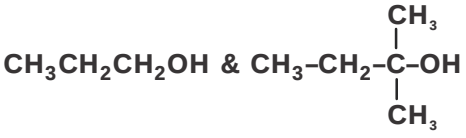
(3) 

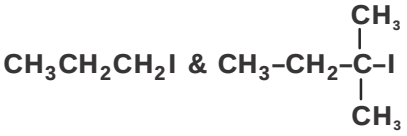
(4) 

83. 

(1) 

(2) 

(3) 

(4) 

84. $C_{12}H_{22}O_{11} + H_2O \xrightarrow{A}$ Glucose + Fructose

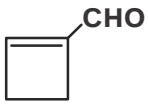
$C_6H_{12}O_6 \xrightarrow{C} B + CO_2$ which is correct

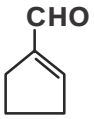
(1) 'A' is zymase
(2) 'C' is invertase
(3) B is methanol
(4) 'A' is invertase

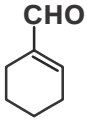
85. Equivalent conductance of saturated $BaSO_4$ is 400 ohm^{-1} cm^2 $equiv^{-1}$ and specific conductance is 8×10^{-5} ohm^{-1} cm^{-1}. Hence k_{sp} of $BaSO_4$ is

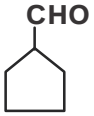
(1) $4 \times 10^{-8} m^2$ (2) $1 \times 10^{-8} m^2$
(3) $2 \times 10^{-4} m^2$ (4) $1 \times 10^{-4} m^2$

86.  $\xrightarrow[\Delta]{OH^-}$ product

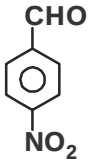
(1) 

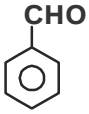
(2) 

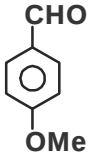
(3) 

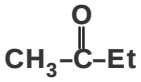
(4) 

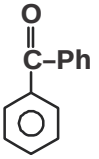
87. The correct order of rate of reaction towards NAR

(a) 

(b) 

(c) 

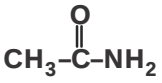
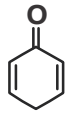
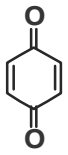
(d) 

(e) 

(1) a > b > c > d > e (2) a > b > d > c > e
(3) a > d > e > b > c (4) a > b > e > d > c

88. Which one of the following is used to make "non-stick" cookware
(1) Polyacrylonitrile
(2) Nylon –2–Nylon 6
(3) Polystyrene
(4) Polytetrafluoro ethene

89. How many mole of AgCl are produced during reaction of $AgNO_3$ with $[Co(NH_3)_4Cl_2]Cl$
(1) 2 mole (2) 1 mole
(3) 3 mole (4) zero mole

90. Which show tautomerism
(a)  (b) $CH_3CH_2 - N = O$
(c)  (d) 
(1) a, b, c, d (2) a, b, c only
(3) b, c, d only (4) only a, b, only

91. The famous Botanical garden of kew is located in :-
(1) India (2) England
(3) Germany (4) France

92. When placenta forms of ridge along the ventral suture of the ovary and the ovules are borne on this ridge forming two rows, the type of placentation is termed as :-
(1) Marginal (2) Axile
(3) Parietal (4) Free central

93. The important muscle proteins that help in movement are :-
(1) Actin and myosin (2) Tropomyosin
(3) Troponin (4) All of these

94. Which one of the following groups includes all sexually transmitted diseases ?
(1) AIDS, syphilis, cholera
(2) HIV, Malaria, trichomoniasis
(3) Gonorrhoea, hepatitis -B, chlamydiasis
(4) Hepatitis - B, Haemophilia, AIDS

95. The carrying capacity of environment for a given population can be represented by the equation
(1) $dN = rN - \frac{N}{K}$ (2) $\frac{dN}{dt} = rN - \frac{N}{K}$
(3) $\frac{dN}{dt} = rN - \frac{1}{K}$ (4) $\frac{dN}{dt} = rN\left(1 - \frac{N}{K}\right)$

96. An example of liliaceae family is :-
(1) Lupin (2) Soyabean
(3) Petunia (4) Tulip

97. During amplification of gene using PCR, Taq polymerase is used between :-
(1) Denaturation and annealing
(2) Annealing and extension
(3) extension and amplification
(4) none of the above

98. In TCA cycle, substrate level phosphorylation takes place during the conversion of :-
(1) oxaloacetic acid to citric acid
(2) succinyl CoA to succinic acid
(3) Fumaric acid to malic acid
(4) Succinic acid to fumaric acid

99. The aestivation in corolla of calotropis is :-
(1) Valvate (2) twisted
(3) imbricate (4) vexillary

100. Maximum modes of nutrition are found in :-
(1) Monera (2) Protista
(3) Fungi (4) Plantae

101. Oral contraceptive prevents pregnancy by :-
(1) Killing the ovum
(2) Blocking fertilization
(3) Preventing ovulation
(4) Preventing implantation

102. Which structural level enables the proteins to function as enzymes ?
(1) Primay (2) Secondary
(3) Tertiary (4) Quaternary

103. Sex determination by chromosomal difference in man and Drosophila is by mechanism called :-
(1) XX - XY (2) XX - XO
(3) ZZ - ZW (4) Both (1) and (2)

104. Which of the following is correct ?
(1) Population change = (Birth + immigration) – (death + Emigration)
(2) Population change = (Birth + immigration) + (death + Emigration)
(3) Population change = (Birth + Emigration) + (death - immigration)
(4) Population change = (Birth - immigration) - (death + emigration)

105. Sickle cell anaemia results due to mutation caused by :-
(1) Substitution (2) insertion
(3) Deletion (4) Duplication

106. Conjoint and closed vascular bundles with no phloem parenchyma may be observed in :-
(1) Monocot stem (2) Monocot root
(3) Dicot stem (4) Dicot root

107. The chromosomes with centromere situated close to it's end forming one extremely short and one very long arm is known as :-
(1) Metacentric (2) Submetacentric
(3) Acrocentric (4) Telocentric

108. Katherine Esau, a world known name in plant anatomy, was born in :-
(1) Australia (2) Ukraine
(3) Austria (4) U.K

109. Each step in classifiction respresents a :-
(1) Rank (2) Category
(3) Taxon (4) All of the above

110. The range of known and described species is :-
(1) 1.5 – 1.8 million (2) 1.6 – 1.7 million
(3) 1.7 – 1.8 million (4) 1.8 – 1.9 million

111. The fungus without mycelium is :-
(1) Rhizopus (2) Mucor
(3) Saccharomyces (4) Puccinia

112. Match the column I with column II choose the correct option :-

Column I		Column II
(a) Phycomycetes	–	(1) Rust fungus
(b) Ascomycetes	–	(2) Trichoderma
(c) Basidiomycetes	–	(3) Neurospora
(d) Deuteromycetes	–	(4) Bread mould

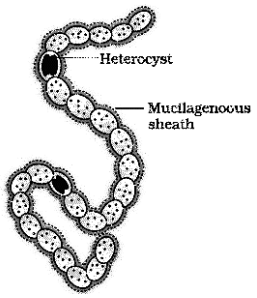
(1) a – 4 b – 3 c – 2 d – 1
(2) a – 3 b – 4 c – 1 d – 2
(3) a – 3 b – 4 c – 2 d – 1
(4) a – 4 b – 3 c – 1 d – 2

113. Statement A : In Rhodophyceae, food is stored as mannitol and laminarin
Statement B : Ovules of Gymnosperms are not enclosed by ovary wall
(1) Statement B is correct and statement A is wrong
(2) Both the statement A and B are correct
(3) Statement A is correct and statement B is wrong
(4) Both the statement A and B are wrong

114. Which is the oviparous mammal ?
(1) Balaenoptera (2) Pteropus
(3) Ornithorynchus (4) macropus

115. The environment (Protection) Act to protect and improve the quantity of environment (air, water and soil) was passed by the Government of India in the year :–
(1) 1971 (2) 1974
(3) 1981 (4) 1986

116. Recognise the figure and find suitable matching :–



(1) Blue green algae
(2) Non-Filamentous blue green algae
(3) Filamentous blue green algae
(4) Green algae

117. Radial symmetry is not found in :-
(1) Brain coral (2) Pleurobrachia
(3) Scypha (4) Nereis

118. Match the column (A) and (B)

Column A	Column B
(i) Marginal placentation	(a) Marigold
(ii) Axile placentation	(b) Dianthus
(iii) Parietal placentation	(c) Argemone
(iv) Free central placentation	(d) Chinarose
(v) Basal placentation	(e) Pea

(1) a – (v) b – (iv) c – (iii) d – (ii) e – (i)
(2) a – (v) b – (iii) c – (iv) d – (i) e – (ii)
(3) a – (iv) b – (iii) c – (v) d – (ii) e – (i)
(4) a – (i) b – (v) c – (iv) d – (iii) e – (ii)

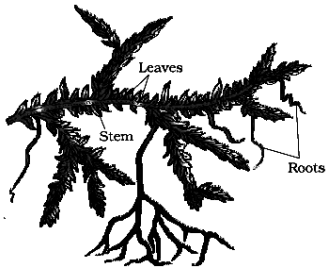
119. Sphagnum is commonly used as packing material for transshipment of living material due to its
(1) capacity to hold water
(2) easy availability
(3) nature as it can grow any where
(4) all of the above

120. Secretin :–
(1) Stimulates enzyme secretion by pancreas, inhibits acid secretion in stomach, stimulates gall bladder.
(2) Stimulates bicarbonates secretion by pancreas, inhibits acid secretion in stomach, stimulates bicarbonate secretion by liver
(3) Stimulates acid secretion in stomach, potentiater action of CCK, inhibits intestinal movement
(4) Stimulates gallbladder, inhibits acid secretion in stomach, stimulates bicarbonate secretion by pancreas.

121. Which is the edible fungi ?
(1) Penicillium (2) Mucor
(3) Buffles (4) Rhizopus

122. Which is absent in most of the monocotyledons ?
(1) Collenchyma
(2) Phloem parenchyma
(3) Xylem parenchyma
(4) Both (1) and (2)

123. Identify the figure and find out that this plant belongs to the class :-



(1) Pteridophytes (2) Bryophytes
(3) Sphenopsida (4) Lycopsida

124. An organism in the following figure is :-

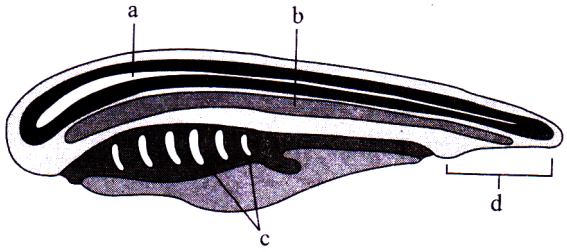
(1) monoecious (2) Dioecious
(3) Hermaphrodite (4) Both (1) and (3)

125. Late wood is also called a wood and formed in the b season.
(1) (a) – spring, (b) – Autumn
(2) (a) – Autumn (b) – Spring
(3) (a) – spring (b) – Winter
(4) (a) – Autumn (b) – Winter

126. Bad ozone is found in :-
(1) Troposphere
(2) Stratosphere
(3) Thermosphere
(4) Both (1) and (3)

127. Read the following statements :–
(a) Majority of the pteridophytes are heterosporous
(b) Gymnosperms are usually heterosporous
(c) Microphylls are found in ferns
(d) Dicotyledonae is the class of pea
Which statement is / are incorrect ?
(1) (d) only (2) (a) and (b)
(3) (a) and (c) (4) (c) only

128. Which of the following structure leads to the formation of vertebral column in adult vertebrates



(1) d (2) c
(3) b (4) a

129. Number of male and female gential pores in earthworm is respectively :–
(1) 1 , 1 (2) 1, 2
(3) 2, 1 (4) 2, 2

130. Which is a part of endomembrane system of eukaryotic cells ?
(1) Mitochondria (2) Peroxysomes
(3) Chloroplasts (4) Golgi bodies

131. Match the column I with column II and choose the correct option.

Column I		Column II
(a) chlorophyceae	–	(1) Porphyra
(b) Phaeophyceae	–	(2) Dictyota
(c) Rhodophyceae	–	(3) Chara

(1) a – 1 b – 2 c – 3
(2) a – 3 b – 2 c – 1
(3) a – 2 b – 1 c – 3
(4) a – 1 b – 3 c – 2

132. Find out the floral formula on the basis of above diagram

(1) % ♀♂ $K_{(5)}\ C_{1+2+(2)}\ A_{(9)+1}\ \underline{G}_1$
(2) % ♀♂ $K_{(5)}\ C_{1+2+2}\ A_{(9)+1}\ G_1$
(3) ⊕ ♀♂ $K_{(5)}\ C_{(5)}\ A_{(9)+1}\ G_{(2)}$
(4) ⊕ ♀♂ $K_{(5)}\ C_{(5)}\ A_{(9)+1}\ G_{(3)}$

133. In female cockroach brood or gential pouch is formed by :–
(1) 8th, 9th and 10th sterna
(2) 8th, 9th and 10th terga
(3) 7th, 8th and 9th sterna
(4) 7th, 8th and 9th terga

134. In cholesterol, how many hydroxyl group is present ?
(1) 4 (2) 3
(3) 2 (4) 1

135. The site of attachment of spindle fibre, is
(1) centromere (2) kinetochore
(3) chromomere
(4) Secondary constriction

136. The form of sugar transported through phloem is :–
(1) Glucose (2) Starch
(3) Sucrose (4) Fructose

137. Nitrifying bacteria :–
(1) Convert free nitrogen to nitrogen compounds
(2) Convert proteins into ammonia
(3) Reduce nitrates to free nitrogen
(4) Oxidize ammonia to nitrates

138. Besides water and light which is more essential as raw material for food formation :–
(1) CO_2 (2) NAD
(3) O_2 (4) Mineral salts

139. First product of photorespiration is :–
(1) Phosphoglycolate (2) Glycolate
(3) Glycine
(4) None of the above

140. Match the column A and B

Column A	Column B
(a) Inulin	(i) Helical
(b) Glycogen	(ii) Glucose
(c) Starch	(iii) Fructose
(d) Cellulose	(iv) Nonhelical

(1) a – (i) b – (ii) c – (iv) d – (iii)
(2) a – (ii) b – (i) c – (iii) d – (iv)
(3) a – (iii) b – (ii) c – (i) d – (iv)
(4) a – (iii) b – (i) c – (ii) d – (iv)

141. During which stage bivalent chromosomes clearly appears as tetrads .
(1) Diplotene (2) Diakinesis
(3) Zygotene (4) Pachytene

142. Mineral absorption is mostly :–
(1) Physical process (2) Chemical process
(3) Active process (4) Passive process

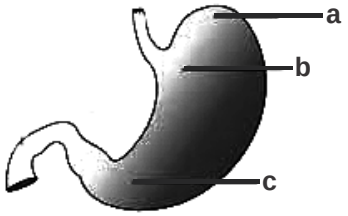
143. Statement A :– ETS occurs in inner mitochondrial membrane.
Statement B : – R. Q = volume of O_2 evolved / volume of CO_2 consumed
(1) Statement B is correct and statement A is wrong
(2) Both the statement A and B are correct
(3) Statement A is correct and statement B is wrong
(4) Both the statements A and B are wrong

144. Which one group is of micro element ?
(1) Mn, Cu, Ca (2) Na, K, B
(3) Na, Ni, Cl (4) Cu, Mo, Zn, Fe

145. Which one of the following is a natural growth inhibitor ?
(1) NAA (2) ABA / Ethylene
(3) IAA (4) GA

146. Liver is situated in the
(1) Thoracic cavity (2) Abdominal cavity
(3) Pelvic regions (4) Gall bladder

147. Identify the following figure and select the correct option :–



(1) (a) – Cardiac, (b) – Fundus, (c) – pyloric
(2) (b) – Cardiac, (c) – Fundus, (a) – pyloric
(3) (c) – Cardiac, (a) – Fundus (b) – pyloric
(4) (b) – Cardiac, (a) – Fundus (c) – pyloric

148. How much % of O_2 and CO_2 is transported by the RBCs, respectively ?
(1) 97 %, 70% (2) 97 %, 7 %
(3) 70 %, 20 - 25 % (4) 97 %, 20-25 %

149. Succinate + FAD forms :–
(1) Fumarate + $FADH_2$
(2) Malate + $NADH_2$
(3) Isocitrate + $NADH_2$
(4) Citrate + Water

150. Which is not a natural plant hormone ?
(1) GA_3 (2) GA_2
(3) IAA (4) $2,4-D$

151. Faeces are temporarly stored (till defaecation) in the :–
(1) Caecum (2) Colon
(3) Rectum (4) Anus

152. The opening between right atrium and right ventricle is guarded by :–
(1) Bicuspid valve (2) Mitral valve
(3) Tricuspid valve (4) Both (1) and (2)

153. Match the column :–

Column I	Column II
(a) Eosinophil	(i) 0.5 – 1%
(b) Basophil	(ii) 2 – 3 %
(c) Neutrophil	(iii) 6 – 8 %
(d) Lymphocyte	(iv) 20 – 25 %
(e) Monocyte	(v) 60 – 65 %

(1) a – (iii) b – (i) c – (v) d – (iv) e – (ii)
(2) a – (ii) b – (i) c – (v) d – (iv) e – (iii)
(3) a – (iii) b – (v) c – (i) d – (iv) e – (ii)
(4) a – (ii) b – (i) c – (v) d – (iii) e – (iv)

154. Gastric gland is present in which layer ?
(1) Serosa (2) Muscularis
(3) Sub - mucosa (4) Mucosa

155. GFR of a healthy individual is approximately
(1) 125 litres / day (2) 180 ml / minute
(3) 1.5 litre / day (4) 180 litres / day

156. The portion of the myofibril between two successive z-lines is called :-
(1) H–zone (2) Sarcomere
(3) Functional unit of contraction
(4) Both (2) and (3)

157. The fluid filled inner ear called :–
(1) Oval window (2) Labyrinth
(3) Cochlea
(4) Membranous labyrinth

158. Hormones of adrenal medulla are commonly called as :–
(1) Glucocorticoids (2) Mineralocorticoids
(3) Adrenaline (4) Catecholamines

159. Spermatogenesis is regulated by :–
(1) Androgen (2) FSH
(3) LH (4) Both (1) and (2)

160. PCT is lined by :–
(1) Simple squamous epithelium
(2) Simple cuboidal epithelium
(3) Simple columnar epithelium
(4) ciliated epithelium

161. Match the column I with column II and choose the correct option :–

Column I	Column II
(a) Earthwarm	(1) Monoecious
(b) Cockroach	(2) Dioecious
(c) Marchantia	
(d) Chara	

(1) a – 2 b – 1 c – 1 d – 2
(2) a – 1 b – 2 c – 2 d – 1
(3) a – 2 b – 1 c – 2 d – 1
(4) a – 1 b – 2 c – 1 d – 2

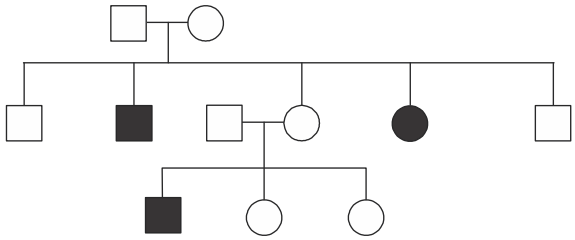
162. Pea is an example of :–
(1) Bisexual, cross fertilizing plant
(2) Bisexual, self - fertilizing plant
(3) Unisexual, cross - fertilizing plant
(4) Unisexual, self-fertilizing plant

163. Arrangement of nuclei in normal dicot embryo sac is :–
(1) 3 + 3 + 2 (2) 2 + 4 + 2
(3) 3 + 2 + 3 (4) 2 + 3 + 3

164. Several mammary ducts join to form a :–
(1) Mammary lobes (2) Mammary alveoli
(3) Mammary ampulla (4) Lactiferous duct

165. Surgical method of contraception prevent :–
(1) Gamete formation
(2) Gamete transport
(3) Gamete development
(4) Gamete maturation

166. Study the pedigree chart given below, what does it show ?



(1) Myotonic dystrophy
(2) Sickle cell anaemia
(3) Haemophilia
(4) Down's syndrome

167. Histones proteins are rich in :–
(1) Histidine and arginine
(2) Histidine and lysine
(3) Histidine, arginine and lysine
(4) Arginine and lysine

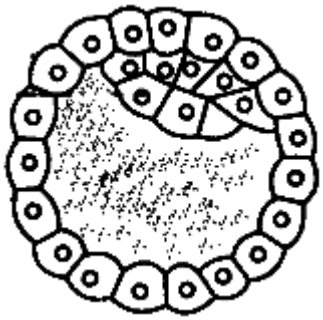
168. The VNTR belongs to a class of satellite DNA referred to as :–
(1) Repetative DNA (2) Mega satellite
(3) Mini - satellite (4) Micro - satellite

169. Strobilanthus kunthiana is mainly found in
(1) Kerala, karnataka and orissa
(2) kerala, karnataka and maharastra
(3) kerala, karnataka and Tamilnadu
(4) Kerala and sri lanka

170. Date palm prevents :–
(1) Autogamy (2) Geitonogamy
(3) Xenogamy (4) Both (1) and (2)

171. Gonadotropins are released from
(1) Hypothalamus (2) Anterior pituitary
(3) Posterior pituitary (4) Ovary

172. The figure shown below represents :–



(1) Morula (2) Blastocyst
(3) Gastrula (4) Ampulla

173. Female condom is used to cover
(1) Vagina (2) Cervix
(3) Vagina, cervix and uterus
(4) Vagina and cervix

174. Tasmanian wolf is a marsupial while wolf is a placental mammal. This shows:–
(1) Convergent evolution
(2) Divergent evolution
(3) Parallel evolution
(4) Both (2) and (3)

175. The primate which existed about15 mya was :-
(1) Homo habilis
(2) Australopithecus
(3) Homo eractus
(4) Ramapithecus

176. LSD, morphine and Bhang are respectively obtained from :–
(1) Claviceps, Papaver and Cannabis
(2) Claviceps, cannabis and Rauwolfia
(3) Cannabis, Claviceps and Fusarium
(4) Claviceps , Rauwolfia and Papaver

177. Which veriefy of the Brassica is resistance to insect pests ?
(i) Pusa Gaurav (ii) Pusa Swarnim
(iii) Pusa Subhra (iv)Karan Rai
(v) Rapeseed mustard
(1) (i), (ii) (2) (i), (iii), (v)
(3) (ii), (iv) (4) (i) , (v)

178. Hairy leaves in cotton leads to :–
(1) Resistance to cereal leaf beetle
(2) Resistance to bollworms
(3) Resistance to Jassids
(4) Resistance to Sawfly

179. Vector which is commonly used to transfer foreign gene in animal cell :–
(1) Gene - gun (2) Biolistics
(3) Agrobacterium tumefaciens
(4) Retroviruses

180. Bollworm attack :–
(1) Bt cotton
(2) Tomato
(3) Cotton
(4) Bacillus thuringiensis