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FULL PAPER TEST 2

Total Marks : 720   Duration : 180

Physics

1) The maximum kinetic energy of ejected photoelectrons is K_1, if a sodium metal is illuminated light of frequency $v = \frac{3v_0}{2}$, where λ_0 is threshold frequency of sodium metal. What happens if the frequency of incident light reduced to half ie. $\frac{v}{2}$?

   (1) Maximum kinetic energy of electrons becomes $\frac{K_1}{2}$

   (2) maximum velocity of ejected electrons becomes $\frac{1}{\sqrt{2}}$ times of original value.

   (3) stopping potential reduced to half

   (4) no photoelectric emission takes place

2) If the wavelength of light in an experiment on photoelectric effects is doubled

   (1) The photoelectric emission will not take place

   (2) The photoemission may or may not take place

   (3) Both 2 and 4

   (4) The stopping potential will decrease under the condition that energy of photon doubled. Wavelength is more than work functional metal

3) The earth has a volume V and surface area 'A'. The capacitance would be

   (1) $4\pi\varepsilon_0 \frac{A}{V}$

   (2) $4\pi\varepsilon_0 \frac{V}{A}$

   (3) $12\pi\varepsilon_0 \frac{V}{A}$

   (4) $12\pi\varepsilon_0 \frac{A}{V}$

4) When the kinetic energy of an electron is increased, the wavelength of the associated wave will

   (1) Increase

   (2) Decrease

   (3) Wavelength does not depend on the kinetic energy

   (4) None of the above

5) In the given common emitter configuration, an NPN transistor with current gain β=100 is used. The output voltage of the amplifier will be:
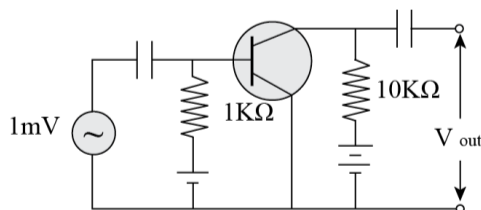
   (1) 10 mV

   (2) 0.1 V

   (3) 1.0 V

   (4) 10 V

6) Light of wavelength 500 nm is incident on a metal with work function 2.28 eV. The de Broglie wavelength of the emitted electron is:

   (1) $\leq 2.8 \times 10^{-12}\, m$

   (2) $< 2.8 \times 10^{-10}\, m$

   (3) $< 2.8 \times 10^{-9}\, m$

   (4) $\geq 2.8 \times 10^{-9}\, m$

7) The de-Broglie wavelength of an electron having 80 eV of energy is nearly ($1\,eV = 1.6 \times 10^{-19}$ J, Mass electron $= 9 \times 10^{-31}$ kg plank's constant $= 6.6 \times 10^{-34}$ j − see)

   (1) $140\ \overset{0}{A}$

   (2) $0.14\ \overset{0}{A}$

   (3) $14\ \overset{0}{A}$

   (4) $1.44\ \overset{0}{A}$

8) An $n-p-n$ transistor circuit has α = 0.985. If $I_c = 2\,mA$, then value of I_b is -

   (1) 0.03 mA

   (2) 0.003 mA

   (3) 0.66 mA

   (4) 0.015 mA

9) An n-p-n transistor operates in a common emitter mode as shown below. Given, $I_C = 4mA$, $V_{CE} = 4V, V_{BE} = 0.6V$. R_L is:

   (1) $1\,k\,\Omega$

   (2) $18.5\ k\Omega$

   (3) $185\,k\Omega$

   (4) $1.85 k\Omega$

10) A common emitter amplifier is designed with NPN transistor (α = 0.99). The input impedance is 1 kΩ and the load is 10 kΩ. The voltage gain will be:

   (1) 9.9

   (2) 99

   (3) 990

   (4) 9900

11) A particle starts from origin at t=0 with a velocity of $\left(10\hat{i} - 8\hat{j}\right)$ m/s and moves in x-y plane under the action of force which produces a constant acceleration of $\left(2\hat{i} + 8\hat{j}\right) m/s^2$. The x − coordinate of the particle at the instant it crosses the x-axis is

   (1) 12 m

   (2) 24 m

   (3) 18 m

   (4) 30 m

12) What is the stopping potential when a metal with work function 0.6 eV is illuminated with the light of 2 eV?

   (1) 2.6 V

   (2) 3.6 V

   (3) 0.8 V

   (4) 1.4 V

13) In an NPN transistor, 10^{10} electrons enter emitter region in 10^{-6} s. If 2% electrons are lost in base region, then collector current and current amplification factor (β) respectively are:

   (1) 1.57 mA, 49

   (2) 1.92 mA, 70

   (3) 2 mA, 25

   (4) 2.25 mA, 100

14) Illuminating the surface of a certain metal alternately with light of wavelengths $\lambda_1 = 0.35\mu m$ and $\lambda_2 = 0.54\mu m$, it was found that the corresponding maximum velocities of photoelectrons have a ratio $\eta = 2$. Find the work function of that metal.

   (1) 3.22 eV

   (2) 1.88 eV

(3) 5.64 eV

(4) 6.28 eV

15) In a common emitter amplifier, the phase difference between the input signal voltage and the output voltage is:

(1) 0

(2) $\pi/4$

(3) $\pi/2$

(4) π

16) A solid sphere of mass m and radius r is placed inside a hollow thin spherical shell of mass M and radius R as shown in the figure. A particle of mass m' is placed on the line joining the two centres at a distance x from the point of contact of the sphere and the shell. Find the magnitude of the resultant gravitational force on this particle due to the sphere and the shell if r < x < 2r.
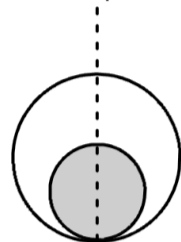

(1) $\dfrac{Gmm'(x-r)}{r^3}$

(2) $\dfrac{Gmm'}{r^2}$

(3) $\dfrac{Gmm'}{R^2}$

(4) $\dfrac{Gmm'(R-x)}{R^3}$

17) Wires of the same length and Young's modulus are subjected to same tensile force. If Δl is the change in length of a wire, and c is the circumference of the wire, find the correct graph. The experiment is performed on the wires of different circumferences.

(1)

(2)

(3)

(4)
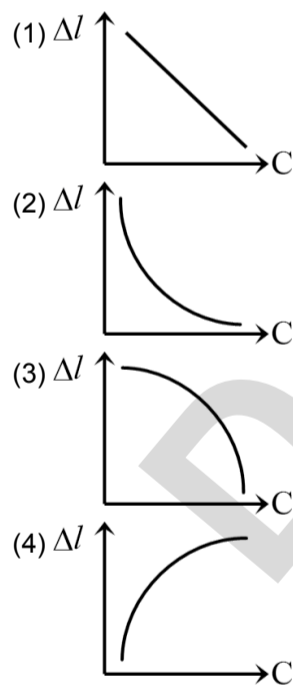
18) Threshold frequency for a metal is 10^{15} Hz. Light of λ = 4000 Å falls on its surface. Which of the following statements is correct?

(1) No photoelectric emission takes place

(2) Photo-electrons come out with zero speed

(3) Photo-electrons come out with $10^3 m/\sec$ speed

(4) Photo-electrons come out with $10^5 m/\sec$ speed

19) de-Broglie wavelength of a body of mass m and kinetic energy E is given by

(1) $\lambda = \dfrac{h}{mE}$

(2) $\lambda = \dfrac{\sqrt{2mE}}{h}$

(3) $\lambda = \dfrac{h}{2mE}$

(4) $\lambda = \dfrac{h}{\sqrt{2mE}}$

20) Pressure versus temperature graph of an ideal gas of equal number of moles of different volumes is plotted as shown in the figure. Choose the correct option.
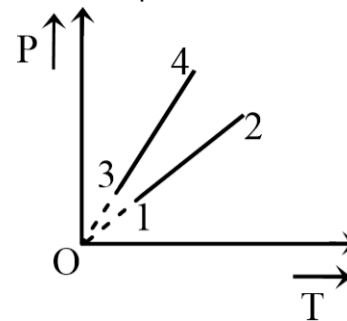
(1) $V_1 = V_2, V_3 = V_4$, and $V_1 > V_4$

(2) $V_1 = V_2, V_3 = V_4$ and $V_1 < V_2$

(3) $V_1 = V_2 = V_3 = V_4$

(4) $V_4 > V_3 > V_2 > V_1$

21) The angle between two vectors given by $6\vec{i} + 6\vec{j} - 3\vec{k}$ and $7\vec{i} + 4\vec{j} + 4\vec{k}$ is

(1) $\cos^{-1}\left(\dfrac{1}{\sqrt{3}}\right)$

(2) $\cos^{-1}\left(\dfrac{5}{\sqrt{3}}\right)$

(3) $\sin^{-1}\left(\dfrac{2}{\sqrt{3}}\right)$

(4) $\sin^{-1}\left(\dfrac{\sqrt{5}}{3}\right)$

22) In the Davisson and Germer experiment, the velocity of electrons emitted from the electron gun can be increased by

(1) Increasing the potential difference between the anode and filament

(2) Increasing the filament current

(3) Decreasing the filament current

(4) Decreasing the potential difference between the anode and filament

23) Which of the following is incorrect statement?

(1) Work function depends on properties of photosensitive metal and nature of its surface

(2) Stopping potential is independent of frequency of incident radiation

(3) Photoelectric emission takes place if wavelength of incident photons must be less than or equal to threshold wavelength of photosensitive plate

(4) Photo saturation current increases with the increase of intensity of radiation for a given frequency of radiation

24) X-rays of wavelength 0.1 Å allowed to fall on a metal get scattered. The wavelength of scattered radiation is 0.111 Å. If $h = 6.624 \times 10^{-34} J-s$ and $m_e = 9.1 \times 10^{-31} kg$, then the direction of the scattered photons will be

(1) $\cos^{-1}(0.547)$

(2) $\cos^{-1}(0.4484)$

(3) $\cos^{-1}(0.5)$

(4) $\cos^{-1}(0.3)$

25) The energy of an α-particle, whose de-Broglie wavelength is 0.001 Å, will be :

(1) 1297 eV

(2) 1245 eV

(3) 1205 eV

(4) 1288 GeV

26) In a uniform electric field of 24000 V/m, a dielectric slab of thickness 10 cm is kept such that the electric field lines are perpendicular to the surface of the slab. If the dielectric constant of the material of the slab is K = 6, the intensity of the induced electric field inside the dielectric is

(1) 4000 V/m

(2) zero

(3) 20000 V/m

(4) 28000 V/m

27) The speed of an electron having a wavelength of $10^{-10}\,m$ is

(1) $7.25 \times 10^6\,m/s$

(2) $6.26 \times 10^6\,m/s$

(3) $5.25 \times 10^6\,m/s$

(4) $4.24 \times 10^6\,m/s$

28) Monochromatic light of frequency v_1 irradiates a photocell and the stopping potential is found to be V_v. What is the new stopping potential of the cell if it is irradiated by monochromatic light of frequency v_2?

(1) $V_1 + \frac{h}{e}(v_2 - v_1)$

(2) $V_1 - \frac{h}{e}(v_2 - v_1)$

(3) $V_1 + \frac{h}{e}(v_1 + v_2)$

(4) $V_1 - \frac{h}{e}(v_1 + v_2)$

29) A rocket of mass M is launched vertically from the surface of the earth with an initial speed V. Assuming the radius of the earth to be R and negligible air resistance, the maximum height attained by the rocket above the surface of the earth is

(1) $R / \left(\frac{gR}{2V^2} - 1 \right)$

(2) $R \left(\frac{gR}{2V^2} - 1 \right)$

(3) $R / \left(\frac{2gR}{V^2} - 1 \right)$

(4) $R \left(\frac{2gR}{V^2} - 1 \right)$

30) An infinite number of point masses, each of one kg are fixed on the +ve X axis at 1 m, 2 m, 4 m, 8 m and so on from the origin. The magnitude of the gravitational field at origin due to this distribution of point masses is:

(1) 2 G

(2) $\frac{4G}{3}$

(3) $\frac{3G}{4}$

(4) ∞

31) A satellite revolves in a circular orbit with speed $V = \frac{1}{\sqrt{3}}\,V_e$. If the satellite is suddenly stopped and allowed to fall freely on to the earth, the speed with which it hits earth's surface is:

(1) $\sqrt{gR}$

(2) $\sqrt{\frac{gR}{3}}$

(3) $\sqrt{2gR}$

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

32) Assuming photoemission to take place, the factor by which the maximum velocity of the emitted photoelectrons changes when the wavelength of the incident radiation is increased four times is:

(1) 4

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

(3) 2

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

33) A potentiometer PQ is set up to compare two resistances as shown in the figure. The ammeter A in the circuit reads 1 A when two-way key K_3 is open. The balance point is at a length l_1 cm from P when two-way key K_3 is plugged in between 2 and 1, while the balance point is at a length l_2 cm from P when key K_3 is plugged in between 3 and 1. The ratio of two resistances R_1/R_2, is found to be:
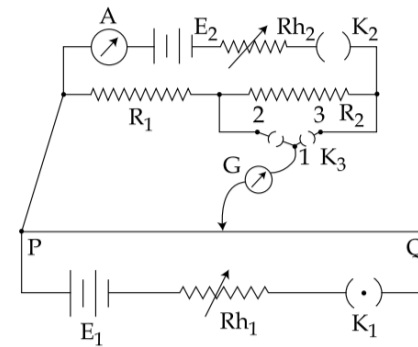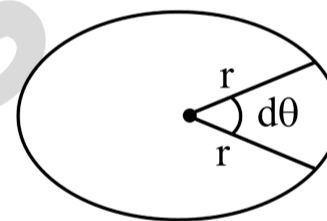

(1) $\dfrac{l_1}{l_1 + l_2}$

(2) $\dfrac{l_2}{l_2 - l_1}$

(3) $\dfrac{l_1}{l_1 - l_2}$

(4) $\dfrac{l_1}{l_2 - l_1}$

34) The symbol given in the figure represents:
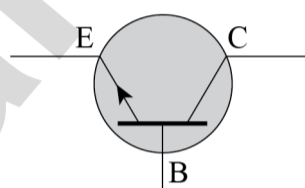
(1) NPN transistor

(2) PNP transistor

(3) Forward biased PN junction diode

(4) Reverse biased NP junction diode

35) A planet of mass m having angular momentum L is revolving around the sun. The aerial velocity of the planet will be:

(1) $\dfrac{L}{m}$

(2) $\dfrac{L}{2m}$

(3) $\dfrac{2L}{m}$

(4) $\dfrac{L}{4m}$

36) At NTP the density of a gas is 1.3 kg/m^3 and the velocity of sound propagation in the gas is 330 m/s. The degree of freedom of gas molecule is:

(1) 3

(2) 5

(3) 6

(4) 7

37) A physical quantity of the dimensions of length that can be formed out of c, G and $\frac{e^2}{4\pi\varepsilon_0}$ is (c is velocity of light, G is universal constant of gravitation and e is charge)

(1) $C^2 \left[G \frac{e^2}{4\pi\varepsilon_0} \right]^{\frac{1}{2}}$

(2) $\frac{1}{C^2} \left[\frac{e^2}{G 4\pi\varepsilon_0} \right]^{\frac{1}{2}}$

(3) $\frac{1}{C} G \frac{e^2}{4\pi\varepsilon_0}$

(4) $\frac{1}{C^2} \left[G \frac{e^2}{4\pi\varepsilon_0} \right]^{\frac{1}{2}}$

38) The maximum velocity of an electron emitted by light of wavelength λ incident on the surface of a metal of work function Φ is: (h = Planck's constant, m = mass of electron, c = speed of light)

   (1) $\left[\dfrac{2(hc + \lambda\phi)}{m\lambda}\right]^{1/2}$

   (2) $\dfrac{2(hc - \lambda\phi)}{m}$

   (3) $\left[\dfrac{2(hc - \lambda\phi)}{m\lambda}\right]^{1/2}$

   (4) $\left[\dfrac{2(h\lambda - \phi)}{m}\right]^{1/2}$

39) The least doped region in a transistor:

   (1) Either emitter or collector

   (2) Base

   (3) Emitter

   (4) Collector

40) The RMS velocity of the molecules in a sample of helium is 5/7 that of the molecules in a sample of hydrogen. If the temperature of the hydrogen sample is 0°C, that of helium sample is:

   (1) 0°C

   (2) 0 K

   (3) 273°C

   (4) 100°C

41) A point source of light is used in an experiment on photoelectric effect. Which of the following curves best represents the variation of photocurrent (i) with distance (d) of the source from the emitter?
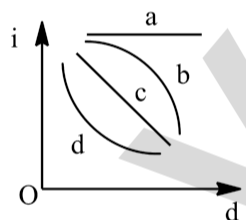

   (1) a

   (2) b

   (3) c

   (4) d

42) The de-Broglie wavelength of an electron in 4th orbit is (r = radius of 1st orbit)

   (1) $2\pi r$

   (2) $4\pi r$

   (3) $8\pi r$

   (4) $16\pi r$

43) A technician has only two capacitors. By using these in series or in parallel he is able to obtain the capacitances of 3 μF and 16 μF. The capacitances of the capacitors are:

   (1) 6 μF and 10 μF

   (2) 4 μF and 12 μF

   (3) 7 μF and 9 μF

   (4) 4 μF and 16 μF

44) The graph between output current (I_C) and input current (I_B) for common emitter of NPN transistor is given in the figure. Find current gain.
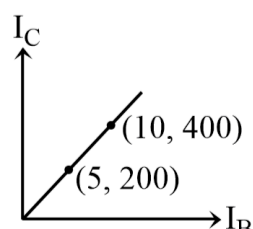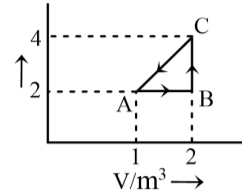

   (1) 20

   (2) 30

   (3) 40

   (4) 50

45) An ideal gas is taken along path ABCA as shown in the figure. Choose the correct option.
   A) work done by the gas from A to B is 2 J
   B) work done by the gas from B to C is 0 J
   C) work done by the gas from C to A is 3 J
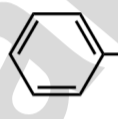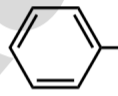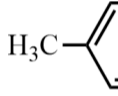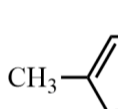   D) work done on the gas from C to A is 3 J

   (1) A, B and C are correct

   (2) A and B are correct

   (3) A, B and D are correct

   (4) only B is correct

Chemistry

46) Compound A, $C_8H_{10}O$, is found to react with NaOI (produced by reacting Y with NaOH) and yields a yellow precipitate with characteristic smell.
   A and Y are respectively

   (1)

   (2)

   (3)

   (4)

47) A compound X of formula C_3H_8O yields a compound C_3H_6O on oxidation. To which of the following classes of compounds could X being

   (1) Secondary alcohol

   (2) Alkene

   (3) Aldehyde

   (4) Tertiary alcohol

48) The oxidation potentials of Zn, Cu, Ag, H_2 and Ni are 0.76, -0.34, - 0.8, 0.00 and 0.25 V respectively. Which of the following reactions will produce maximum voltage ?

   (1) $Zn + Cu^{+2}$

   (2) $Zn + 2Ag^{+}$

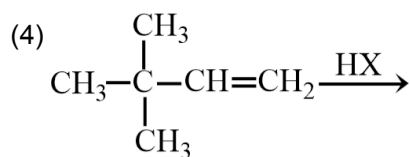   (3) $H_2 + Cu^{+2}$

   (4) $H_2 + Ni^{+2}$

49) The cleaning action of soap is due to

   (1) Its dissociation into ions in water

   (2) The presence of Na^{+} ions in soap

   (3) ions of hard water

   (4) Its action as an emulsifying agent

50) Which of the following reaction takes place by rearrangement of carbocation

   (1)

   (2)

   (3)

(4)

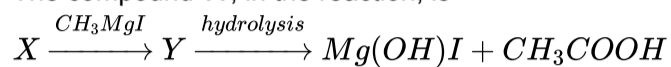$$CH_3-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH=CH_2 \xrightarrow{HX}$$

51) 4 g of copper was dissolved in concentrated nitric acid. The copper nitrate solution on strong heating gave 5 g of its oxide. The equivalent weight of copper is

(1) 23.0

(2) 32.0

(3) 12.0

(4) 20.0

52) The compound 'X', in the reaction, is

$$X \xrightarrow{CH_3MgI} Y \xrightarrow{hydrolysis} Mg(OH)I + CH_3COOH$$

(1) CH_3CHO

(2) CO_2

(3) $(CH_3)_2CO$

(4) $HCHO$

53) The number of nucleons in chlorine-37 is

(1) 17

(2) 20

(3) 54

(4) 37

54) For the reaction $PCl_3(g) + Cl_2(g) \rightleftharpoons PCl_5(g)$ the position of equilibrium can be shifted to the right by

(1) Increasing the temperature

(2) Doubling the volume

(3) Addition of Cl_2 at constant volume

(4) Addition of equimolar quantities of PCl_3 and PCl_5

55)

$$CH_3 - \underset{\underset{H}{|}}{\overset{\overset{OH}{|}}{C}} - CN \text{ is}$$
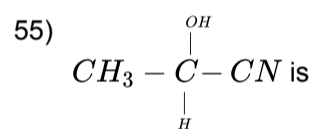
(1) Acetaldehyde cyanohydrin

(2) Acetone cyanohydrin

(3) Cyanoethanol

(4) Ethanol nitrile

56) In which of the following systems, doubling the volume of the container causes a shift to the right

(1) $H_2(g) + I_2(g) \Leftrightarrow 2HI(g)$

(2) $2CO(g) + O_2(g) \Leftrightarrow 2CO_2(g)$

(3) $N_2(g) + 3H_2(g) \Leftrightarrow 2NH_3(g)$

(4) $PCl_5(g) \Leftrightarrow PCl_3(g) + Cl_2(g)$

57) Osazone formation involves only 2 carbon atoms of glucose because it involves

(1) Chelation

(2) Oxidation

(3) Reduction

(4) Hydrolysis

58) Methyl-tert-butyl ether can be prepared by using

(1) $(C_2H_5)_3CONa + CH_3Cl$

(2) $CH_3ONa + (C_2H_5)_3CCl$

(3) $(CH_3)_3CONa + CH_3Cl$

(4) $CH_3ONa + (CH_3)_3CCl$

59) For a first order reaction, the rate constant (k) is equal to

(1) ln 2

(2) $\frac{\log 2}{t_{1/2}}$

(3) $\frac{\ln 2}{t_{1/2}}$

(4) $\ln \frac{2}{t_{1/2}}$

60) In the reaction $A \to B$ if the concentration of A is increased by four times, then the rate of reaction become doubled, then the order of the reaction is

(1) Zero

(2) 1

(3) 1/2

(4) 2

61) The temperature coefficient of the cell is $\left(\frac{\partial E}{\partial T}\right)_P$. Then, which of the following is incorrect statement.

(1) When $\left(\frac{\partial E}{\partial T}\right)_P = 0,\ then\,\Delta H = -nFE$

(2) As temperature increases E.cell increases in case of endothermic reaction

(3) As temperature increases E.cell decreases in case of exothermic reaction

(4) When $\left(\frac{\partial E}{\partial T}\right)_P = 0,\ then\ \Delta H > nFE\,Endothermic\,reaction$

62) The electronic configuration of P in $H_3\overset{+5}{P}O_4$ is (given atomic number of P is 15)

(1) $1s^2 2s^2 2p^6 3s^2 3p^3$

(2) $1s^2 2s^2 2p^6 3s^2$

(3) $1s^2 2s^2 2p^6$

(4) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$

63) Thermosetting plastics are

(1) Soluble in water

(2) Soluble in alcohol

(3) Soluble in benzene

(4) Insoluble

64) Complex X of composition $Cr(H_2O)_6Cl_n$ has a spin only magnetic moment of 3.83 BM. It reacts with $AgNO_3$ and shows geometrical isomerism. The IPUAC nomenclature of X is :

(1) Tetraaquadichloride chromium (III) chloride dihydrate

(2) Hexaaqua chromium (III) chloride

(3) Dichloridotetraaqua chromium (IV) chloride dihydrate

(4) Tetraaquadichlorido chromium (IV) chloride dihydrate

65) The oxidation number of chromium in sodium tetrafluorido oxochromate complex is

(1) II

(2) IV

(3) VI

(4) III

66) The specific conductivity of a saturated solution of AgCl is $2.30 \times 10^{-6}\ mho.\,cm^{-1}$ at 25^0C. The solubility of AgCl at 25^0C is

(if $\lambda Ag^+ = 61.9\ mho.\,cm^2.\ mol^{-1}$ and $\lambda_{cl}^{\Theta} = 76.3\,mho.\,cm^2.\,mol^{-1}$)

(1) $1.66 \times 10^{-5} gr/L$

(2) $2.382 \times 10^{-3} gr/L$

(3) $1.66 \times 10^{-6} gr/L$

(4) $1.38 \times 10^{-5} gr/L$

67) The number of electrons involved in the reduction of $Cr_2O_7^{2-}$ in acidic solution to Cr^{3+} is

(1) 6

(2) 2

(3) 3

(4) 5

68) A gas shows maximum deviation from ideal gas at

(1) 0^0C and 1 atmospheric pressure

(2) 100^0C and 2 atmospheric pressure

(3) -100^0C and 5 atmospheric pressure

(4) 500^0C and 1 atmospheric pressure

69) Which of the following statements is not correct ?

(1) Insulin maintains sugar level in the blood of a human body.

(2) Ovalbumin is a simple food reserve in egg – white.

(3) Blood proteins thrombin and fibrinogen are involved in blood clotting.

(4) Denaturation makes the proteins more active.

70) The Clemmensen reduction of acetone yields

(1) Ethanol

(2) Ethanal

(3) Propane

(4) Propanol

71) A reversible chemical reaction having two reactants in equilibrium. If the concentrations of the reactants are doubled, then the equilibrium constant will

(1) Also be doubled

(2) Be halved

(3) Become one-fourth

(4) Remain the same

72) The water soluble and insoluble components of starch are respectively

(1) Amylose, Amylopectin

(2) Amylopectin, Galactose

(3) Amylopectin, Amylose

(4) Amylose, Galactose

73) Boron forms only

(1) Ionic compounds

(2) Covalent compounds

(3) Both (1) & (2)

(4) None

74) Given the following diagram for the reaction A+B $\rightarrow$ C+D. The enthalpy change and activation energy for the reverse C+D $\rightarrow$ A+B are respectively
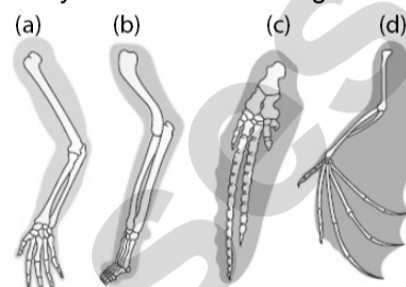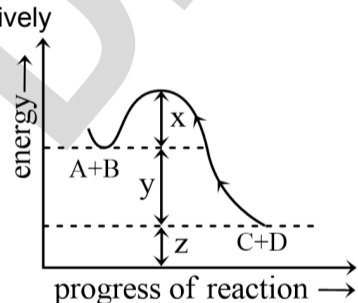

(1) x,y

(2) x,x+y

(3) y,x+y

(4) y,y+z

75) In the following reaction A is

(1)

(2)

(3)

(4)

76) The solubility product of As_2S_3 is 2.8×10^{-72}. What is the solubility of As_2S_3

(1) $1.09 \times 10^{-15}\ mole/litre$

(2) $1.72 \times 10^{-15}\ mole/litre$

(3) $2.3 \times 10^{-16}\ mole/litre$

(4) $1.65 \times 10^{-36}\ mole/litre$

77) Select the true statement about benzene from amongst the following

(1) Because of unsaturation benzene easily undergoes addition reactions

(2) There are two types of C - C bonds in benzene molecule

(3) There is a cyclic delocalisation of π electrons in benzene

(4) Monosubstitution of benzene gives three isomeric substances

78) The complexes $[Co(NH_3)_6]\,[Cr(C_2O_4)_3]$ and $[Cr(NH_3)_6]\,[Co(C_2O_4)_3]$

(1) Linkage isomerism

(2) Geometrical isomerism

(3) Coordination isomerism

(4) Ionisation isomerism

79) Which of the following orders of relative strength of acids is correct? Arrange them in $\downarrow$ order
(1) CH_3COOH (2) H_2O
(3) HCN (4) C_2H_5OH

(1) 1 > 3 > 2 > 4

(2) 2 > 4 > 3 > 1

(3) 3 > 1 > 4 > 2

(4) 4 > 2 > 1 > 3

80) Find the volume of Cl_2 at NTP produced during electrolysis of $MgCl_2$ which produces $6.6g.\ Mg.\ (At.\ wt.\ of\ Mg = 24.3)$

(1) 4.5 L

(2) 3.8 L

(3) 6.08 L

(4) 8.08 L

81) Number of ions present in $K_4[Fe(CN)_6]$

(1) 2

(2) 10

(3) 3

(4) 5

82) $A_{2(g)} + B_{2(g)} \rightleftharpoons 2AB_{(g)}; \Delta H = +ve$

(1) Unaffected by pressure

(2) It occurs spontaneously

(3) It occurs at low temperature

(4) It occurs at high pressure and high temperature

83) The correct electronic configuration of gadolinium is (Z=64)

(1) $[Xe]\,4f^75d^16s^2$

(2) $[Xe]\,4f^65d^26s^2$

(3) $[Xe]\,4f^75d^06s^2$

(4) $[Xe]\,4f^{14}5d^06s^2$

84) The major product formed when methyl Iodide reacts with sodium nitrite is

(1) Methyl nitrite

(2) Nitromethane

(3) Nitrous acid

(4) Nitroethane

85) Which of the following in not an example of green chemistry?

(1) Reacting methylamine and phoshogene to produce methyl isocyanate

(2) Replacement of CFCs by CO_2 as blowing agent in the manufacture of polystyrene foam sheets

(3) Catalytic dehydrogenation of the diethanol amine without using cyanide and formaldehyde

(4) Replacement of organotins by 'sea-nine' as antifouling compound in boats and ships

86) Example for disproportionation reaction among the following

(1) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$

(2) $S + O_2 \rightarrow SO_2$

(3) $Ag^{+2} + Ag \rightarrow 2Ag^+$

(4) $P_4 + 3OH^- + 3H_2O \rightarrow PH_3 + 3H_2PO_2^-$

87) The ratio of the mass of C-12 atom to that of an atom of element X [whose atomicity is four] is 1:9. The molecular mass of element X is

(1) $480\,g\,mol^{-1}$

(2) $432\,g\,mol^{-1}$

(3) $36\,g\,mol^{-1}$

(4) $84\,g\,mol^{-1}$

88) The alkaline earth metal that does not lose its metallic lustre when exposed to air is

(1) Ba

(2) Mg

(3) Be

(4) Ca

89) Product Q' is

$$CH_3 \overset{O}{\underset{HO}{\diagdown}} \xrightarrow{\text{(i)SOCl}_2} \text{'P'} \xrightarrow{C_3H_7NH_2} \text{'Q'}$$

(1) an amide

(2) an amine

(3) nitro compound

(4) nitrile compound

90) A metal has bcc structure and the edge length of its unit cell is $3.04\overset{0}{A}$. The volume of the unit cell in cm^3 will be

(1) $1.6 \times 10^{21}\,cm^3$

(2) $2.81 \times 10^{-23}\,cm^3$

(3) $6.02 \times 10^{-23}\,cm^3$

(4) $6.6 \times 10^{-24}\,cm^3$

Biology

91) Consider the following four statement (a-d) and select the option which includes all the correct
ones only :
(a) The codon is read in mRNA in a continuous fashion
(b) UAG codon has dual function in protein synthesis
(c) In actual structure, the tRNA is a compact molecule which looks like inverted 'L'
(d) 28S rRNA in bacteria also behave as ribozyme

(1) b, c and d

(2) a, b and d

(3) a, c and d

(4) a and c

92) A person entering an empty room suddenly finds a snake in front. What happens to his neurohormonal control system?

(1) Sympathetic nervous system activated, releasing epinephrine and norepinephrine from adrenal medulla

(2) Activation of sympathetic nervous system releasing epinephrine and norepinephrine from adrenal cortex

(3) Neurotransmitters diffuse rapidly across synaptic cleft

(4) Hypothalamus activates parasympathetic nervous system

93) At which stage of cell division do these events occur?

(1) Initiation of the assembly- Prophase Chromatids move to opposite pole- Anaphase Duplication of centriole of mitotic spindle- Anaphase

(2) Initiation of the assembly -Interphase Chromatids move to opposite pole -Telophase Duplication of centriole of mitotic spindle -Prophase

(3) Initiation of the assembly -Metaphase Chromatids move to opposite pole- Prophase Duplication of centriole of mitotic spindle -Telophase

(4) Initiation of the assembly -Prophase Chromatids move to opposite pole- Anaphase Duplication of centriole of mitotic spindle -Interphase

94) The animals which are in the form of clusters of cells and show no division of labour or nerve coordination fall into

(1) The blind sac body pattern

(2) The cell aggregate body pattern

(3) Tube within a tube pattern

(4) Complex body pattern

95) In some species of family Asteraceae seeds are produced without fertilization. It is called as _____

(1) apomixis

(2) amphimixis

(3) parthenocarpy

(4) vivipary

96) Identify the correct matching.

(1) a-man, b-whale, c-cheetah, d-bat

(2) a-man, c-whale, b-cheetah, d-bat

(3) a-man, d-whale, c-cheetah, b-bat

(4) b-man, c-whale, a-cheetah, d-bat

97) In the given examples, how many animals are of class-Aves: Corvus, Columba, Pteropus, Macropus, Calotes, Hemidactylus, Psittacula, Struthio and Macaca

(1) Three

(2) Four

(3) Five

(4) Two

98) In plants, capillarity is aided by the

(1) Small diameter of tracheids

(2) Large diameter of tracheids

(3) Small diameter of vessel elements

(4) Both 1 and 3

99) Which of the following cross can produce terminal flowers in garden pea?

(1) $AA \times Aa$

(2) $AA \times aa$

(3) $Aa \times Aa$

(4) $Aa \times AA$

100) A reptilian that looks like a house lizard is sitting on a plant with its tail coiled around a twig. Can you identify the animal?

(1) Garden lizard (Calotes) showing camouflage

(2) Chamaeleon showing protective colouration

(3) Varanus showing mimicry

(4) Hemidactylus showing sexual dimorphism

101) Which of the following groups of codons code for amino acid serine?

(1) CUU, CUC, CUA and CUG

(2) UAU, UAC, UGU and UGC

(3) UCU, UCC, UCA and UCG

(4) UGU, UGC, UGA and UAG

102) Diagrams of some fishes are given below
Which one of the following is incorrect for the below diagram?
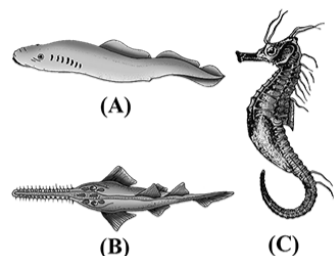
(1) A-has 6-15 pairs gill slits

(2) B-has air bladder

(3) C-has 4 pairs gills

(4) B-has placoid scales

103) Natural killer cells of the immune system represents

(1) First line of defence

(2) II line of defence

(3) III rd line of defence

(4) Humoral immunity

104) SER is involved in

(1) lipid biosynthesis

(2) protein synthesis

(3) Carbohydrate biosynthesis

(4) RNA biosynthesis

105) The credit of initiating efforts that led to 'Green Revolution' goes to

(1) William Gaud

(2) Norman Borlaug

(3) M.S. Swaminathan

(4) Cohen

106) Amphibians are considered to be intermediate between Pisces and reptilia because
a) They possess ventral heart
b) Both gills and pulmonary respiration occur in their life history.
c) Oviparity and viviparity are represented.
d) They are poikilothermal animals

(1) a and c

(2) b and d

(3) a and b

(4) c and d

107) Spermicidal creams, jellies and foams are usually used along with the barrier methods to

(1) Increase their conception efficiency

(2) Decrease their contraceptive efficiency

(3) Increase their contraceptive efficiency

(4) Provide motility to sperms

108) What is the site of perception of photoperiod necessary for the induction of flowering in plants?

(1) Lateral buds

(2) Pulvinus

(3) Shoot apex

(4) Leaves

109) What is the source of energy that flows through the living world?

(1) Photosynthesis

(2) Chemical bond

(3) Green plant

(4) The sun

110) Match the following

1.Clitellum	A.14, 15, 16 segments
2.Male genital pores	B.6-9 segements
3.Female genital pore	C.18th segment
4.Spermathecae	D.14th segment

(1) 1-A, 2-B, 3-C, 4-D

(2) 1-A, 2-D, 3-B, 4-C

(3) 1-A, 2-C, 3-B, 4-D

(4) 1-A, 2-C, 3-D, 4-B

111) The underproduction of hormones by adrenal cortex alters carbohydrate metabolism causing acute weakness and fatigue leading to a disease called

(1) Addison's disease

(2) Hashimoto's disease

(3) Graves disease

(4) Cushing syndrome

112) Match the following.

List - I	List - II
A. Late blight of potato	i) Ustilago
B. White rust of mustard	ii) Colletotrichum
C. Smut of sorghum	iii) Phytophthora
D. Red rot of sugarcane	iv) Albugo

(1) A-i, B-iv, C-iii, D-ii

(2) A-iii, B-iv, C-i, D-ii

(3) A-i, B-ii, C-iii, D-iv

(4) A-iv, B-iii, C-ii, D-i

113) How many of the following list of organisms lack cell wall in their vegetative stage? Diatoms, Cyanobacteria, Chlorella, Chlamydomonas, Spirogyra, Nostoc, Anabaena, Archaea, PPLO, Dinoflagellates, Gonyaulax, Slime moulds

(1) 5

(2) 2

(3) 6

(4) 10

114) All of these are Fundamental chordate characters except

(1) Notochord

(2) Post Anal Tail

(3) Double ventral nerve cord

(4) Pharyngeal gill slits

115) Which of the following is mismatched?

(1) Cerebrum- Memory

(2) Cerebellum - Equilibrium

(3) Olfactory lobes- Smell

(4) Medulla Oblongata - Temperature regulation

116) Fill in the blanks

1. Wheat, barley and rye have two kinds of varieties: winter and spring varieties. The 'spring' variety are normally planted in ....a.... and come to flower and produce grain before the end of growing season.

2. 'Winter' varieties, however, if planted in ...b... would normally fail to flower or produce mature grain within a span of flowering season.

3. Hence 'winter' varieties are planted in ...c..... They germinate, and over ....d.... come out as small seedlings resume growth in the ...e... and are harvested usually around mid-summer.

(1) a-spring, b--winter, c-spring, d-winter, e-spring

(2) a-winter, b--spring, c-winter, d-spring, e-winter

(3) a-spring, b--spring, c-autumn, d-winter, e-spring

(4) a-spring, b-winter, c-autumn, d-spring, e-winter

117) Consider the following statements (A)-(D) each with one or two blanks.

(a) Bears go into ...... (1) ..... during winter to ..... (B) ...... cold weather

(b) A conical age pyramid with a broad base represents ....(C) ..... human population

(c) A wasp pollinating a fig flower is an example of .. .. (D) ......

(d) An area with high levels of species richness is known as .... (5) ....

Which one of the following options, gives the correct fill-ups for the respective blank numbers from (1) to (5) in the statements?

(1) (1) - hibernation, (B) - escape, (C) - expanding, (5) - hot spot

(2) (C) - stable (D) - commensalism, (5) - marsh

(3) (1) - aestivation, (B) - escape, (C) - stable, (D) mutualism

(4) (C) - expanding, (D) commensalism, (5) - biodiversity park

118) Organs of limited growth in plants are

(1) Leaves

(2) Flowers

(3) Fruits

(4) All the above

119) During translation initiation in prokaryotes a GTP molecule needed in

(1) Formation of formylmet - tRNA

(2) Binding of 30s subunit of ribosome with mRNA

(3) Association of formyl-met-tRNA with Initiation codon on mRNA

(4) Formation of peptide bond

120) The four sketches (A, B, C and D) given below represents four different types of animal tissue.Which one of these is correctly identified in the option given along with its correct location and function?
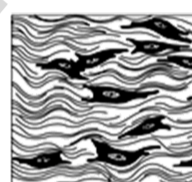
		Tissue	Location	Function
(1)	(B)	Adipose tissue	Beneath the skin & on the stomach	Generally provide the energy
(2)	(C)	Dense irregular connective tissue	In the skin	Provide the elasticity
(3)	(D)	Cartilage	Between adjacent bones of the vertebral column	Prevents the jerk
(4)	(A)	Ciliated columnar epithelium	Inner lining of stomach	Secretion & absorption
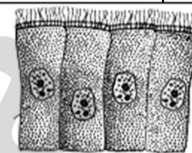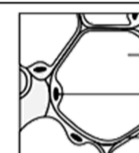
(A)   (B)

(C)   (D)

(1) 1

(2) 2

(3) 3

(4) 4

121) One of the following is not a common disorder associated with the digestive system

(1) Tetanus

(2) Diarrhoea

(3) Jaundice

(4) Dysentery

122) The mitotic cell cycle is divided typically into four phases: Considering a mitotic cycle time of 18 hrs; the distribution of

(1) G1-1, S-3, G2-5, M-9

(2) G1-9, S-1, G2-3, M-5

(3) G1-9, S-5, G2-3, M-1

(4) G1-3, S-5, G2-5, M-9

123) Match the following organisms with their respective characteristics :-

(a) Pila	(i) Flame cells
(b) Bombyx	(ii) Comb plates
(c) Pleurobrachia	(iii) Radula
(d) Taenia	(iv) Malpighian tubules

Select the correct option from the following

(1) a - iii, b - ii, c - i, d - iv

(2) a - iii, b - iv, c - ii, d - i

(3) a - ii, b - iv, c - iii, d - i

(4) a - iii, b - ii, c - iv, d - i

124) Br, $\oplus$, $K_{(5)}$, C_{3+3}, A_0, $G_{(3)}$ which option is true for given floral formula?

(1) It has perianth in two whorls of five each

(2) It is not complete flower

(3) It is not isomerous flower

(4) None of the given

125) Which of the following statements is not true for stomatal apparatus?

(1) Inner walls of guard cells are thick

(2) Guard cells invariably possess chloroplasts and mitochondria

(3) Guard cells are always surrounded by subsidiary cells

(4) Stomata are involved in gaseous exchange

126) Which suspect would you charge with the crime?

(1) Both suspect 1 & 2

(2) Only suspect 1

(3) Only suspect 2

(4) Neither suspect 1 nor suspect 2

127) Which of the following animal don't carry notochord throughout life?

(1) Salpa

(2) Amphioxus

(3) Petromyzon

(4) Scoliodon

128) Which of the following organic compound is correctly related to its function?

(1) Uridine—A nucleotide that makes up RNA

(2) Phosphoglycerides—A component of cell membrane

(3) Serine—A non-protein amino acid

(4) GLUT-4—Inhibits glucose transport into cells

129) One of the following is a positive inter-action in a population.

(1) Adamsia - Hermit Crab

(2) Plasmodium - Mosquito

(3) Sacculina - Crab

(4) Wuchereria - Man

130) In tissue, culture roots can be induced by

(1) No cytokinin & only auxins

(2) Higher concentration of cytokinine & lower concentration of auxins

(3) Higher concentration of auxins & lower concentration of cytokinin

(4) Only cytokinin no auxin

131) Which of the following is catalysed in the last step of Kreb's cycle?

(1) Glucose

(2) Fumerate

(3) Malate

(4) Pyruvate

132) A change in ovum after penetration of sperm is

(1) Formation of first polar body

(2) Second meiosis

(3) First meiosis

(4) Formation of pronuclei

133) Identify the correct statements.

(a) Haemophilia is a sex-linked recessive gene disorder.

(b) Down's syndrome is due to aneuploidy.

(c) Phenylketonuria is an autosomal recessive gene disorder.

(d) Sickle cell anaemia is an X-linked recessive gene disorder.

(1) (a), (b) and (c)are correct

(2) (a) and (d) are correct

(3) (b)and (d) are correct

(4) (a), (c)and (d) are correct

134) The deficiency symptoms tend to appear first in the ...a ... tissues whenever the elements are relatively immobile like ...b ...

(1) a-younger; b-N, K, Sand Mg

(2) a-older; b-N, K, Sand Mg

(3) a-younger; b-Ca

(4) a-older; b-Ca.

135) Match the following.

	Column I		Column II
A.	Adrenaline	1.	Anger, fear, danger
B.	Oestrogen	2.	Attracting partners through sense of smell
C.	Insulin	3.	Females
D.	Pheromones	4.	Glucose

(1) A - 3, B - 1, C - 4, D - 2

(2) A - 1, B - 3, C - 2, D - 4

(3) A - 1, B - 3, C - 4, D - 2

(4) A - 3, B - 1, C - 2, D - 4

136) R.Q. for fatty substance/fat is

(1) Unity

(2) Less than one

(3) Greater than one

(4) Zero

137) Longest portion of bacterial flagella is

(1) Filament

(2) Hook

(3) Basal body

(4) Paraflagellar body

138) The only chordate characteristic found in Balanoglossus is

(1) Dorsal tubular nerve cord

(2) Notochord

(3) Pharyngeal gill slits

(4) All the three

139) Select one word for the statement. Dominance, codominance, incomplete dominance.

a. If F_1 resembled both the parents

b. If F_1 did not resemble either of the two parents.was in between the two

c. If F_1 resembled either of the two parents

(1) c-dominance, b-co dominance, a-incomplete dominance

(2) a-dominance, c-co dominance, b-incomplete dominance

(3) b-dominance, a-co dominance, c-incomplete dominance

(4) c-dominance, a-co dominance, b-incomplete dominance

140) Match the following.

Column I	Column II
a.Tusk shell	i.Chaetopleura
b.Squid	ii.Dentalium
c.Chiton	iii.Aplysia
d.Sea-hare	iv.Loligo

(1) a — iii, b — ii, c — iv, d — i

(2) a — iii, b — iv, c — ii, d — i

(3) a — ii, b — iv, c — iii, d — i

(4) a — ii, b — iv, c — i, d — iii

141) Alpha helices and beta sheets are examples of protein organisation

(1) Quaternary structure

(2) Tertiary structure

(3) Secondary structure

(4) Primary structure

142) During pregnancy,the Human chorionic Gonadotropin is released by

(1) Uterus

(2) Placenta

(3) Ovary

(4) Foetus

143) DNA, present in the nucleus, was named as 'Nuclein' by

(1) James Watson and Crick

(2) Friedrich Miescher

(3) Maurice Wilkins

(4) Rosalind Franklin

144) Hypothalamic and pituitary hormones are

(1) Protein in nature

(2) Steroidal in nature

(3) Amino acid derivative

(4) Iodothyronines

145) Unidirectional transmission of nerve impulse is maintained by

(1) Synapses

(2) Myelin sheath

(3) Membrane polarity

(4) Interneurons

146) Sequence of food materials consumed during starvation is

(1) carbohydrates → fats → proteins

(2) carbohydrates → proteins → fats

(3) proteins → fats → carbohydrate

(4) fats → proteins → carbohydrate

147) Identify ploidies of the following parts of a flowering plant such as Ovary, Anther, Egg, Pollen, Male gamete, Zygote respectively

(1) 2n,2n,n,n,n,2n

(2) 2n,n,2n,2n,n,2n

(3) n,2n,2n,n,2n,n

(4) 2n,2n,n,n,n,n

148) Which of the following mouth part is called tongue of cockroach?

(1) Maxilla

(2) Mandible

(3) Labium

(4) Hypopharynx

149) Which of the following factor does not affect Hardy-Weinberg equilibrium?

(1) Gene migration

(2) Natural selection

(3) Genetic drift

(4) Replication of genetic material

150) Term taxon was given by

(1) Adolf Mayer

(2) Linnaeus

(3) Darwin

(4) Koch

151) An ampicillin sensitive culture of E. coli is transformed with a plasmid that contains a gene of interest plus ampicillin resistance gene. If it is plated on a media containing ampicillin

(1) Only ampicillin sensitive bacteria will grow

(2) All Bacteria will grow

(3) Only the bacteria with plasmid will grow

(4) Only lactose positive bacteria will grow

152) Set of substances that enter into the mucosal cells by coupling with Na^+ is

(1) Water and short chain fatty acids

(2) Shortchain fatty acids and glucose

(3) Glucose and water

(4) Amino acids and glucose

153) A drug addict showed symptoms such as increased appetite, chest pain, redness of eyes, increased urination. He was possibly taking

(1) Cannabis compounds

(2) LSD

(3) Cocaine

(4) Amphetamines

154) Identify the correct statements.
(a) A fatty acid is saturated or unsaturated (one or more than one C = C bonds)
(b) M.P. of oils are less (Gingelly oil) hence they remain liquid in winter
(c) The molecular weight of lipid does not exceed 800 daltons but they are present in the acid-insoluble pool.
(d) Glycerol is a compound lipid which is trihydroxy propane

(1) a, b, d

(2) a, b, c

(3) a, b, c, d

(4) a, b only

155) The work of phycobiont in a lichen is

(1) To prepare food for fungi

(2) To provide shelter to fungi

(3) To provide food and shelter to fungi

(4) All are incorrect

156) Eunuchoidism is due to the failure of production of

(1) FSH

(2) testosterone

(3) ICSH

(4) oestrogen

157) Find out the mismatch among the following pertaining to element and its function

(1) Sulphur – constituent in cysteine & methionine

(2) Boron – enzymes involved in redox reactions

(3) Chlorine – splitting of water in photosynthesis

(4) Iron – formation of chlorophyll

158) Juxtaglomerular cells of renal cortex synthesize an enzyme called

(1) ADH

(2) Oxytocin

(3) Renin

(4) Urochrome

159) Demineralization of the bone is the activity of

(1) Osteoblasts

(2) Chondroblasts

(3) Osteocytes

(4) Osteoclasts

160) During the processing of the prohormone "proinsulin" into the mature "insulin"

(1) C-peptide is added to proinsulin

(2) C-peptide is removed from proinsulin

(3) B-peptide is added to proinsulin

(4) B-peptide is removed from proinsulin

161) According to good humor hypothesis fever is caused by

(1) Phlegm

(2) Yellow bile

(3) Blood

(4) Black bile

162) I. When carpels are free, they are called.....A.....
II. When the carpels fused, they are called.....B.....
Here, A and B refer to

(1) A-syncarpous, B-apocarpous

(2) A-apocarpous, B-syncarpous

(3) A-monocarpous, B-multicarpous

(4) A-multicarpous, B-monocarpous

163) The external pressure applied from the upper part of the funnel to prevent osmosis is called

(1) Osmotic potential

(2) Osmotic pressure

(3) Turgor pressure

(4) Potential pressure

164) Which one of the following is common in silverfish, scorpion, dragonfly and prawn?

(1) Three pairs of legs and segmented body

(2) Chitinous cuticle and two pairs of antennae

(3) Jointed appendages and chitinous exoskeleton

(4) Cephalothorax and trachea

165) Match the following.

Column-I	Column-II
A. Regulator gene	(i) Binding site for repressor protein
B. Promoter	(ii) Codes for a polypeptide
C. Operator	(iii) Binding site for RNA polymerase
D. Structural gene	(iv) Codes for repressor protein

(1) A=(i), B=(ii), C=(iii), D=(iv)

(2) A=(iv), B=(ii), C=(iii), D=(i)

(3) A=(iv), B=(iii), C=(ii), D=(i)

(4) A=(iv), B=(iii), C=(i), D=(ii)

166) Which of the following is incorrect matching?

(1) Pinworm, flatworm, liver fluke – platyhelminthes

(2) Eye worm, Filaria worm, seatworm - Aschelmin¬thes

(3) Ascaris, Wuchereria, Hookworm – Aschelminthes

(4) Taenia, Fasciola, Dugesia, Schistosoma - Platyhelminthes

167) All are true "Climax community" except

(1) Rapidly keeps on changing to reach equilibrium

(2) Final community

(3) End of succession

(4) Stable

168) Which teeth of human are shovel-shaped and used for nibbling, cutting and tearing?

(1) Premolars

(2) Canines

(3) Incisors

(4) Molars

169) Pleiotropy refers to a situation where

(1) A gene affects one specific trait only

(2) A gene affects more than one seemingly unrelated traits

(3) Many small genes affect a single trait

(4) A single gene masks the effect of another gene

170) Which of the following statement regarding Coelenterates is/are wrong?
I. Cnidocytes are present on the tentacles and on the body
II. Diploblastic with cellular level of organisation
III. Polyp forms are free-swimming
IV. Exhibits metagenesis
V. Polyps produce medusae sexually and medusae form polyps asexually

(1) II and IV only

(2) III and V only

(3) I,II and III only

(4) II, III and V only

171) Eight nucleated embryosac is -

(1) Only monosporic

(2) Only bisporic

(3) Only tetrasporic

(4) Any of the above

172) Select the incorrect statement.
(i) In haplodiploid sex-determination system, the males do not have a father and thus cannot have sons, but have a grandfather and can have grandsons
(ii) In honey bee, workers are developed by the unfertilized egg by means of parthenogenesis
(iii) In human skin colour, the effect of each allele is additive
(iv) In XO type of sex-determination, male has half the number of chromosomes as the female

(1) i, iii

(2) ii, iii

(3) ii, iv

(4) i, iv

173) Some hyperthermophilic organisms that grow in highly acidic habitat belong to these two group

(1) Eubacteria and archaea

(2) Cyanobacteria and diatoms

(3) Protists and mosses

(4) Liverworts and yeasts

174) Prolonged use of narcotic analgesics and anabolic steroids does not cause

(1) Body acne

(2) abnormal menstrual cycle

(3) elongation of long bones

(4) depression

175) Vegetation in any area depends on
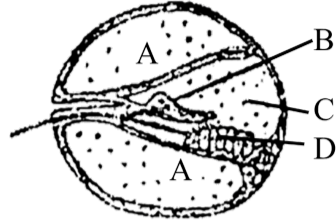
(1) pH of soil

(2) Mineral composition

(3) Topography

(4) All of the above

176) Mineral salts are translocated through xylem along with the _____

(1) ascending stream of water

(2) descending stream of water

(3) Both 1 and 2

(4) through phloem

177) Given below is the diagrammatic cross-section of a single loop of the human cochlea. Identify the parts.

(1) B-Tectorial membrane, C-Perilymph, D-Secretory cells

(2) C-Endolymph, D-Sensory hair cells, A-Serum

(3) D-Sensory hair cells, A-Endolymph, B-Tectorial membrane

(4) A-Perilymph, B-Tectorial membrane, C-Endolymph

178) These macromolecules can be found both as homopolymers and heteropolymers

(1) Nucleic acids

(2) Proteins

(3) Carbohydrates

(4) lipids.

179) Carbohydrases are missing from

(1) Intestinal juice

(2) Pancreatic juice

(3) Gastric juice

(4) Saliva

180) What one among the following is correct?

(1) DNA content becomes double during G_1-phase

(2) Duration of interphase is short as compared to Mphase

(3) G_2-phase follows mitotic phase

(4) DNA-replication occurs in S-phase

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