NEET-UG EXAMINATION PAPER-2017

(Solved)

Time allowed : 3 hours | Maximum Marks : 721

General Instructions :

Read the following instructions carefully and follow them :

i. This question paper contains **180 questions.** All questions are **compulsory.**

ii. This question paper is divided into **1 sections.**

iii. **Section A** – questions number **1 to 180** are multiple choice questions

iv. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.

v. Use of calculator is NOT allowed.

Section A

Question 1.

A physical quantity of the dimensions of length that can be formed out of c, G and $e^2/4\pi\epsilon_0$ [c is velocity of light, G is universal constant of gravitation and e is charge

[4 Marks]

(A) $1/c^2\ [e^2/G4\pi\epsilon_0]^{-1/2}$

(B) $1/c\ G\ e^2/4\pi\epsilon_0$

(C) $1/c^2\ [\ G\ e^2/4\pi\epsilon_0]^{-1/2}$

(D) $c^2\ [Ge^2/4\pi\epsilon_0]^{1/2}$

Question 2.

Preeti reached the metro station and found that the escalator was not working. She walked up the stationary escalator in time t_1. On other days, if she remains stationary on the moving escalator, then the escalator takes her up in time t_2. The time taken by her to walk up on the moving escalator will be

[4 Marks]

(A) $t_1 - t_2$

(B) $t_1t_2/(t_2 - t_1)$

(C) $(t_1 + t_2)/2$

(D) $t_1t_2/(t_2 + t_1)$

Question 3.

The x and y coordinates of the particle at any time are
$x = 5t - 2t^2$ and $y = 10t$ respectively, where x and y are in me

[4 Marks]

(A) 5 m/s^2

(B) 0

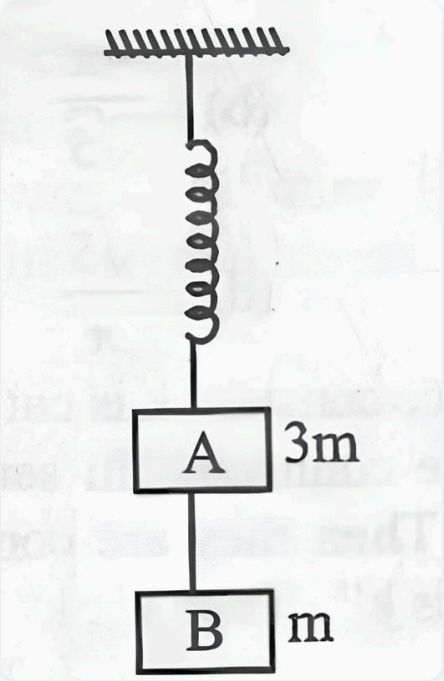
(C) -8 m/s^2

(D) -4 m/s^2

Question 4.

Two blocks A and B of masses 3m and m respectively are connected by a massless and inextensible string. The whole system is suspended by a massless spring as shown in figure. The magnitudes of acceleration of A and B immediately after the string is cut, are respectively:

[4 Marks]



(A) g/3,g

(B) g/3,g/3

(C) g,g/3

(D) g,g

Question 5.

One end of string of length l is connected to a particle of mass 'm' and the other end is connected to a small peg on a smooth horizontal table. If the particle moves in circle with speed 'v' then the net force on the particle (directed towards centre) will be (T represents the tension in the string):

[4 Marks]

(A) $T + mv^2/l$

(B) $T - mv^2/l$

(C) T

(D) Zero

Question 6.

Two discs of same moment of inertia rotating about their regular axis passing through centre and perpendicular to the plane of disc with angular velocities ω_1 and ω_2. They are brought into contact face to face coinciding the axis of rotation. The expression for loss of energy during this process is:

[4 Marks]

(A) $I(\omega_1 - \omega_2)^2$

(B) $1/4\ I(\omega_1 - \omega_2)^2$

(C) $1/2\ I(\omega_1 + \omega_2)^2$

(D) $1/8\ I(\omega_1 - \omega_2)^2$

Question 7.

A rope is wound around a hollow cylinder of mass 3 kg and radius 40 cm. What is the angular acceleration of the cylinder if the rope is pulled with a force of 30 N?

[4 Marks]

(A) 25 rad/s²

(B) 0.25 rad/s²

(C) 5 m/s²

(D) 25 m/s²

Question 8.

Two astronauts are floating in gravitation free space after having lost contact with their spaceship. The two will

[4 Marks]

(A) keep floating at the same distance between them.

(B) become stationary

(C) move towards each other.

(D) move away from each other.

Question 9.

The acceleration due to gravity at a height 1 km above the earth is the same as at a depth d below the surface of earth. Then

[4 Marks]

(A) d = 3/2 km

(B) d = 1 km

(C) d = 2 km

(D) d = 1/2 km

Question 10.

The bulk modulus of a spherical object is 'B'. If it is subjected to uniform pressure 'p', the fractional decrease in radius is

[4 Marks]

(A) 3p/B

(B) p/3B

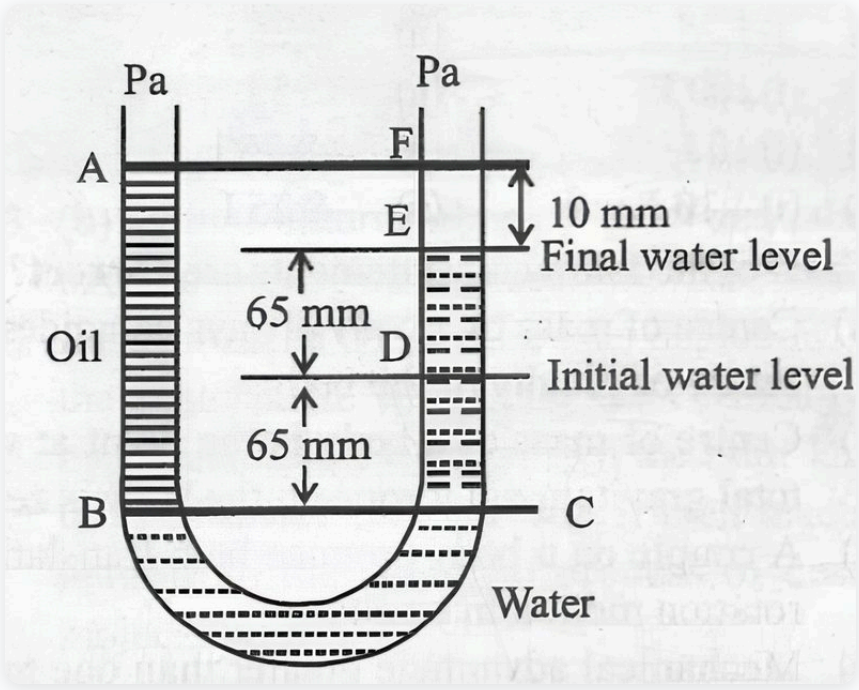
(C) p/3B

(D) p/B

Question 11.

A U tube with both ends open to the atmosphere, is partially filled with water. Oil, which is immiscible with water, is poured into one side until it stands at a distance of 10 mm above the water level on the other side. Meanwhile the water rises by 65 mm from its original level (see diagram).

[4 Marks]



(A) 928 kg m^{-3}

(B) 800 kg m^{-3}

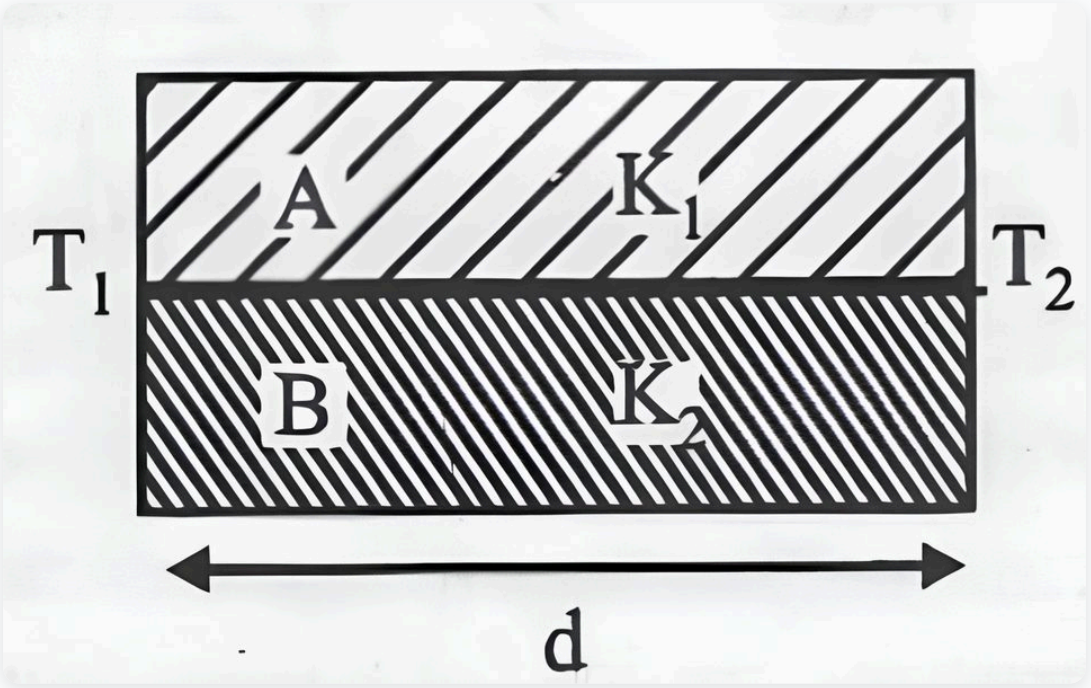
(C) 425 kg m^{-3}

(D) 650 kg m^{-3}

Question 12.

Two rods A and B of different materials are welded together as shown in figure. Their thermal conductivities are K_1 and K_2. The thermal conductivity of the composite rod will be :

[4 Marks]



(A) $(K_1 + K_2)/2$

(B) $2(K_1 + K_2)$

(C) $K_1 + K_2$

(D) $3(K_1 + K_2)/2$

Question 13.

A spherical black body with a radius of 12 cm radiates 450 watt power at 500 K. If the radius were halved and the temperature doubled, the power radiated in watt would be

[4 Marks]

(A) 450

(B) 1000

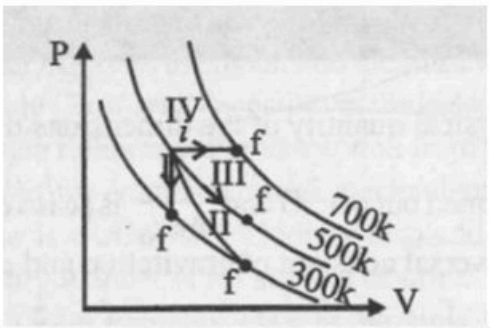
(C) 1800

(D) 225

Question 14.

Thermodynamic processes are indicated in the following diagram:

[4 Marks]



	Column-1		Column-2
P.	Process I	A.	Adiabatic
Q.	Process II	B.	Isobaric
R.	Process III	C.	Isochoric
S.	Process IV	D.	Isothermal

(A) P → D, Q → B, R → A, S → C

(B) P → A, Q → C, R → D, S → B

(C) P → C, Q → A, R → D, S → B

(D) P → C, Q → D, R → B, S → A

Question 15.

A carnot engine having an efficiency of 1/10 as heat engine, is used as a refrigerator. If the work done on the system is 10 J, the amount of energy absorbed from the reservoir at lower temperature is

[4 Marks]

(A) 90 J

(B) 99 J

(C) 100 J

(D) 1 J

Question 16.

A gas mixture consists of 2 moles of O_2 and 4 moles of Ar at temperature T. Neglecting all vibrational modes, the total internal energy of the system is:

[4 Marks]

(A) 9RT

(B) 11RT

(C) 15RT

(D) 4RT

Question 17.

A particle executes linear simple harmonic motion with an amplitude of 3 cm. When the particle is at 2 cm from the mean position, the magnitude of its velocity is equal to that of its acceleration. Then its time period in seconds is

[4 Marks]

(A) $\sqrt{5}/\pi$

(B) $2\pi/\sqrt{3}$

(C) $4\pi/\sqrt{5}$

(D) $\sqrt{5}/2\pi$

Question 18.

A spring of force constant k is cut into lengths of ratio 1 : 2 : 3. They are connected in series and the new force constant is k'. Then they are connected in parallel and force constant is k''. Then k' : k'' is

[4 Marks]

(A) 1:14

(B) 1:6

(C) 1:9

(D) 1:11

Question 19.

The two nearest harmonics of a tube closed at one end and open at other end are 220 Hz and 260 Hz. What is the fundamental frequency of the system?

[4 Marks]

(A) 30 Hz

(B) 10 Hz

(C) 40 Hz

(D) 20 Hz

Question 20.

Two cars moving in opposite directions approach each other with speed of 22 m/s and 16.5 m/s respectively. The driver of the first car blows a horn having a frequency 400 Hz. The frequency heard by the driver of the second car is (velocity of sound 340 m/s):

[4 Marks]

(A) 361 Hz

(B) 411 Hz

(C) 448 Hz

(D) 350 Hz

Question 21.

Suppose the ratio of proton and electron differ slightly. One of them is −e, the other is (e + Δe). If the net of electrostatic force and gravitational force between two hydrogen atoms placed at a distance d (much greater than atomic size) apart is zero, then Δe is of the order of [Given mass of hydrogen m_h = 1.67×10^{-27} kg]

[4 Marks]

(A) 10^{-47} C

(B) 10^{-20} C

(C) 10^{-37} C

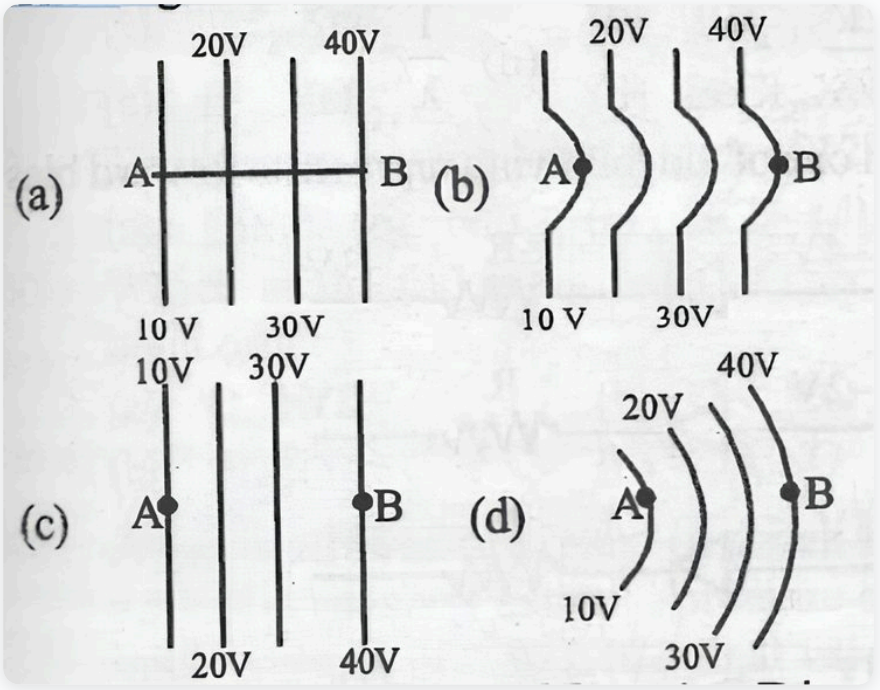
(D) 10^{-23}C

Question 22.

The diagrams below show regions of equipotentials.

A positive charge is moved from A to B in each diagram.

[4 Marks]



(A) In all the four cases the work done is the same

(B) Maximum work is required to move q in figure (c)

(C) Minimum work is required to move q in figure (a)

(D) Maximum work is required to move q in figure (b)

Question 23.

A capacitor is charged by a battery. The battery is removed and another identical uncharged capacitor is connected in parallel. The total electrostatic energy of resulting system:

[4 Marks]

(A) remains the same

(B) decreases by a factor of 2

(C) increases by a factor of 2

(D) increases by a factor of 4

Question 24.

The resistance of a wire is 'R ohm. If it is melted and stretched to 'n' times its original length, its new resistance will be:-

[4 Marks]

(A) R/n^2

(B) nR

(C) n^2R

(D) R/n

Question 25.

A potentiometer is an accurate and versatile device to make electrical measurements of E.M.F. because the method involves

[4 Marks]

(A) Cells

(B) A combination ofcells, galvanometer and resistances

(C) A condition of no current flow through the galvanometer

(D) Potential gradients

Question 26.

A 250-turn rectangular coil of length 2.1 cm and width 1.25 cm can carry a current of 85 μA and subjected to magnetic field of strength 0.85 T. Work done for rotating the coil by 180° against the torque is

[4 Marks]

(A) 4.55 μJ

(B) 1.15 μJ

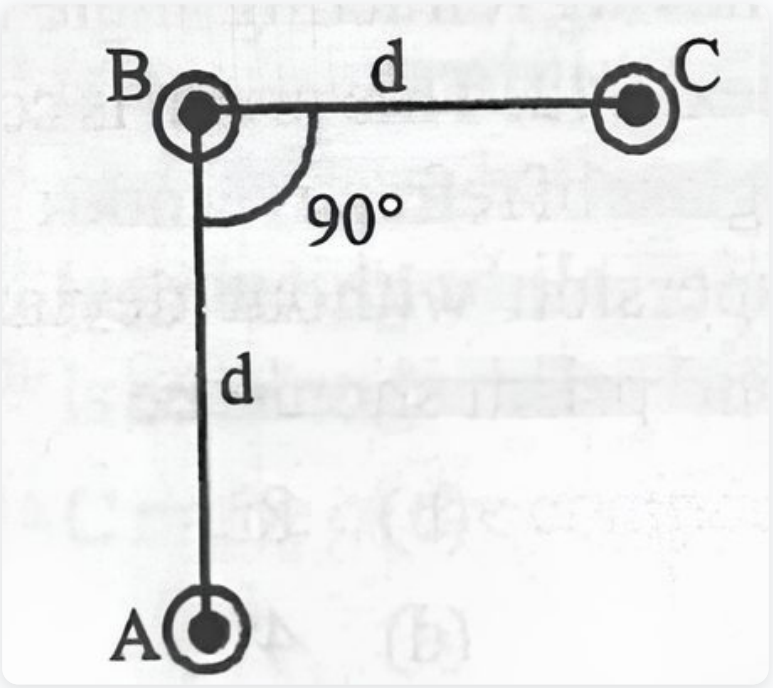
(C) 2.3 μJ

(D) 9.1 μJ

Question 27.

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

[4 Marks]



(A) $\mu_0 i^2/\sqrt{2}\pi d$

(B) $\mu_0 i^2/2\pi d$

(C) $\sqrt{2}\mu_0 i^2/\pi d$

(D) $2\mu_0 i^2/\pi d$

Question 28.

If θ_1 and θ_2 be the apparent angles of dip observed in two vertical planes at right angles to each other, then true angle of dip θ is given by :

[4 Marks]

(A) $\tan^2\theta = \tan^2\theta_1 + \tan^2\theta_2$

(B) $\cot^2\theta = \cot^2\theta_1 - \cot^2\theta_2$

(C) $\tan^2\theta = \tan^2\theta_1 - \tan^2\theta_2$

(D) $\cot^2\theta = \cot^2\theta_1 + \cot^2\theta_2$

Question 29.

A long solenoid of diameter 0.1 m has 2×10^4 turns per meter. At the centre of the solenoid, a coil of 100 turns and radius 0.01 m is placed with its axis coinciding with the solenoid axis. The current in the solenoid reduces at a constant rate to OA from 4 A in 0.05 s. If the resistance of the coil is $10\pi^2\Omega$. the total charge flowing through the coil during this time is :

[4 Marks]

(A) $16\pi\mu C$

(B) $32\pi\mu C$

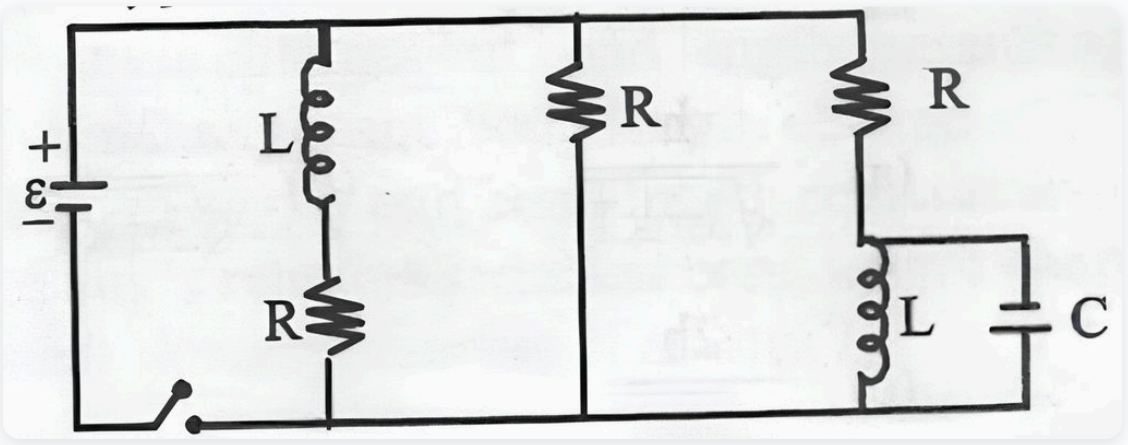
(C) $32\mu C$

(D) $16\mu C$

Question 30.

Figure shows a circuit that contains three identical resistors with resistance R = 9.0 Ω each, two identical inductors with inductance L = 2.0 mH each, and an ideal battery with emf ε = 18 V. The current 'i' through the battery just after the switch closed is

[4 Marks]



(A) 2A

(B) 0.2A

(C) 2mA

(D) 0

Question 31.

In an electromagnetic wave in free space the root mean square value of the electric field is E_{ms} = 6 V/m. The peak value of the magnetic field is

[4 Marks]

(A) 1.41×10^{-8} T

(B) 2.83×10^{-8} T

(C) 4.23×10^{-8} T

(D) 0.70×10^{-8} T

Question 32.

A beam of light from a source L is incident normally on a plane mirror fixed at a certain distance x from the source. The beam is reflected back and a spot on a scale placed just above the source I. When the mirror is rotated through a small angle θ, the spot of the light is found to move through a distance y on the scale. The angle θ is given by

[4 Marks]

(A) y/x

(B) x/2y

(C) x/y

(D) y /2x

Question 33.

A thin prism having refracting angle 10° is made of glass of refractive index 1.42. This prism is combined with another thin prism of glass of refractive index 1.7. This combination produces dispersion without deviation. The refracting angle of second prism should be

[4 Marks]

(A) 10°

(B) 8°

(C) 6°

(D) 4°

Question 34.

Young's double slit experiment is first performed in air and then in a medium other than air. It is found that 8th bright fringe is observed where 5th dark fringe lies in air. The refractive index of the medium is nearly

[4 Marks]

(A) 1.69

(B) 1.25

(C) 1.78

(D) 1.59

Question 35.

Two Polaroids P_1 and P_2 are placed with their axis perpendicular to each other. Unpolarized light I_0 is incident on P_1. A third polaroid P_3 is kept in between P_1 and P_2 such that its axis makes an angle 45° with that of P_1. The intensity of transmitted light P_2 is

[4 Marks]

(A) $I_0/16$

(B) $I_0/8$

(C) $I_0/4$

(D) $I_0/2$

Question 36.

The ratio of resolving powers of an optical microscope for two wavelengths λ_1 = 4000 Å and λ_2 = 6000 Å is

[4 Marks]

(A) 8 : 27

(B) 16 : 81

(C) 3 : 2

(D) 9 : 4

Question 37.

The de-Broglie wavelength of a neutron in thermal equilibrium with heavy water at a temperature T (Kelvin)

and mass m, is :-

[4 Marks]

(A) 2h/√3mkT

(B) h/√ mkT

(C) 2h/√ mkT

(D) h/√3mkT

Question 38.

The ratio of wavelengths of the last line of Balmer series and the last line of Lyman series is

[4 Marks]

(A) 0.5

(B) 1

(C) 2

(D) 4

Question 39.

Radioactive material 'A' has decay constant λ and material 'B' has decay constant λ'. Initially they have same number of nuclei. After what time, the ratio of number of nuclei of material 'B' to that 'A' will be 1/e?

[4 Marks]

(A) 1/λ

(B) 1/9λ

(C) 1/8λ

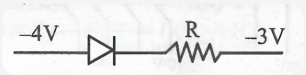
(D) 1/7λ

Question 40.

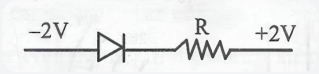
Which one of the following represents forward bias diode?

[4 Marks]

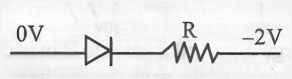
(A)



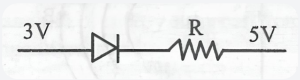
(B)



(C)



(D)



Question 41.

In a common emitter transistor amplifier the audio signal voltage across the collector is 3 V. The resistance of collector is 3 kΩ. If current gain is 100 and the base resistance is 2 kΩ, the voltage and power gain of the amplifier is

[4 Marks]

(A) 200 and 1000

(B) 20 and 2000

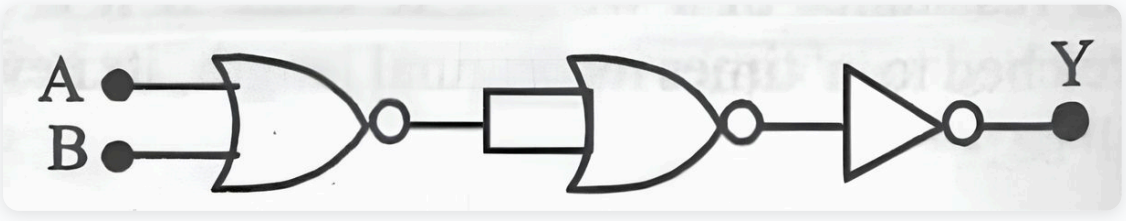
(C) 15 and 200

(D) 150 and 15000

Question 42.

The given electrical network is equivalent to :

[4 Marks]



(A) NOT gate

(B) AND gate

(C) OR gate

(D) NOR gate

Question 43.

Which one is the wrong statement ?

[4 Marks]

(A) de-Broglie's wavelength is given by $\lambda = h/mv$ where m = mass of the particle, v = group velocity of the particle.

(B) The energy of 2s orbital is less than the energy of 2p orbital in case of Hydrogen like atoms.

(C) The uncertainty principle is $\Delta E \times \Delta t \geq h/4\pi$

(D) Half filled and fully filled orbitals have greater stability due to greater exchange energy, greater symmetry and more balanced arrangement.

Question 44.

The element Z = 114 has been discovered recently.
It will belong to which of the following family/group and electronic configuration?

[4 Marks]

(A) Halogen family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^5$

(B) Nitrogen family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^6$

(C) Carbon family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^2$

(D) Oxygen family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^4$

Question 45.

Which of the following pairs of compounds isoelectronic and isostructural?

[4 Marks]

(A) $BeCl_2$, XeF_2

(B) TeI_2, XeF_2

(C) IF_3, XeF_2

(D) IBr_2^-, XeF_2

Question 46.

The species, having bond angles of 120° is:

[4 Marks]

(A) PH_3

(B) NCl_3

(C) ClF_3

(D) BCl_3

Question 47.

Which of the following pairs of species have the same bond order?

[4 Marks]

(A) CN^-, CO

(B) O_2, NO^+

(C) CO, NO

(D) N_2, O^-_2

Question 48.

A gas is allowed to expand in a well insulated container against a constant external pressure of 2.5 atm from an initial volume of 2.50 L to a final volume of 4.50 L. The change in internal energy ΔU of the gas in joules will be:

[4 Marks]

(A) −500 J

(B) +505 J

(C) 1136.25 J

(D) −505 J

Question 49.

For a given reaction, $\Delta H = 35.5$ kJ mol^{-1} and $\Delta S = 83.6$ JK^{-1} mol^{-1}. The reaction is spontaneous at:

(Assume that ΔH and ΔS do not vary with temperature)

[4 Marks]

(A) $T > 425$ K

(B) All temperatures

(C) T > 298 K

(D) T < 425 K

Question 50.

The equilibrium constant of the following are:

$N_2 + 3H_2 \rightleftharpoons 2NH_3$ K_1
$N_2 + O_2 \rightleftharpoons 2NO$ K_2

$H_2 + 1/2\ O_2 \rightleftharpoons H_2O$ K_3

[4 Marks]

The equilibrium constant (K) of the reaction :
$2NH_3 + \frac{5}{2}O_2 \overset{K}{\rightleftharpoons} 2NO + 3H_2O$, will be;

(A) $K_2^3K_3/K_1$

(B) $K_2K_3^3/K_1$

(C) $K_1K_3^3/K_2$

(D) K_2K_3/K_1

Question 51.

A 20 litre container at 400 K contains $CO_2(g)$ at pressure 0.4 atm and excess of SrO (neglect volume occupied by SrO). The volume of the container is now decreased by moving the movable piston tighter, with constant temperature. The maximum volume of the container, when pressure of CO_2 attains its maximum value, will be:
(Given that : $SrCO_3(s) \rightleftharpoons SrO(s) + CO_2(g)$, KP = 1.6 atm)

[4 Marks]

(A) 5 litre

(B) 2 litre

(C) 4 litre

(D) 10 litre

Question 52.

Concentration of the Ag^+ ions in a saturated solution of $Ag_2C_2O_4$ is 2.2×10^{-4} mol L^{-1}. Solubility product of $Ag_2C_2O_4$ is:

[4 Marks]

(A) 2.66×10^{-12}

(B) 2.42×10^{-8}

(C) 4.5×10^{-11}

(D) 5.3×10^{-12}

Question 53.

It is because of inability of np^2 electrons of the valence shell to participate in bonding that:

[4 Marks]

(A) Sn^{4+} is reducing while Pb^{4+} is oxidising

(B) Sn^{2+} is oxidising while Pb^{4+} is reducing

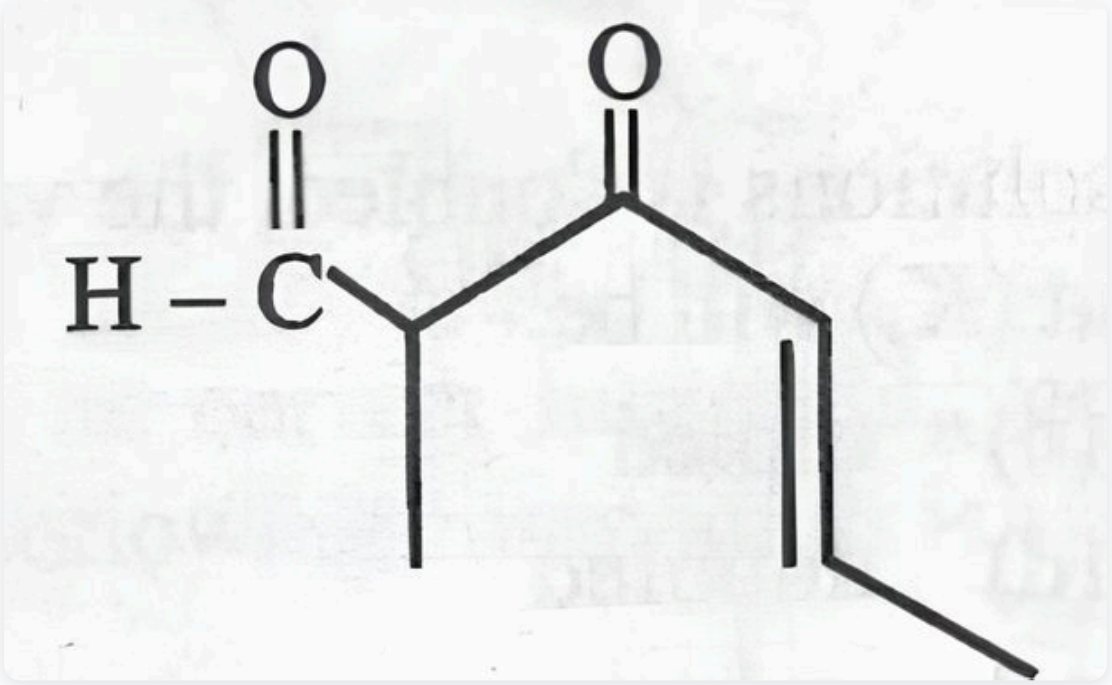
(C) Sn^{2+} and Pb^{2+} are both oxidising and reducing

(D) Sn^{2+} is reducing while Pb^{4+} is oxidising

Question 54.

The IUPAC name of the compound is:

[4 Marks]



(A) 3-keto-2-methylhex-4-enal

(B) 3-keto-2-methylhex-5-enal

(C) 5-methyl-4-oxohex-2-en-5-al

(D) 5-formylhex-2-en-3-one

Question 55.

The most suitable method of separation of 1 : 1 mixture of ortho and para-nitrophenols is:

[4 Marks]

(A) Sublimation

(B) Steam distillation

(C) Crystallisation

(D) Chromatography

Question 56.

The correct statement regarding electrophile is:

[4 Marks]

(A) Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from another electrophile

(B) Electrophiles are generally neutral species and can form a bond by accepting pair of electrons from a nucleophile

(C) Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from a nucleophile

(D) Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electrons from a nucleophile

Question 57.

With respect to the conformers of ethane, which of the following statements is true?

[4 Marks]

(A) Bond angle remains same but bond length changes

(B) Both bond angles and bond length remains same

(C) Both bond angle and bond length change

(D) Bond angle changes but bond length remains same

Question 58.

Which one is the correct order of acidity?

[4 Marks]

(A) CH_3-CH_3>CH_2=CH_2>CH_3–C≡CH>CH≡CH

(B) CH≡CH>CH_2=CH_2>CH_3–C≡CH>CH_3–CH_3

(C) CH≡CH > CH_3–C≡CH > CH_2=CH_2 > CH_3–CH_3

(D) CH_2=CH_2>CH_3-CH=CH–>CH_3-c ≡CH>CH≡CH

Question 59.

Which of the following is a sink for CO?

[4 Marks]

(A) Oceans

(B) Haemoglobin

(C) Plants

(D) Microorganism present in the soil

Question 60.

If molality of the dilute solutions is doubled, the value of molal depression constant (K_f) will be-

[4 Marks]

(A) tripled

(B) halved

(C) unchanged

(D) doubled

Question 61.

Which of the following is dependent on temperature?

[4 Marks]

(A) Molality

(B) Weight percentage

(C) Mole fraction

(D) Molarity

Question 62.

Ionic mobility of which of the following alkali metal ions is lowest when aqueous solution of their salts are put under an electric field?

[4 Marks]

(A) K

(B) Li

(C) Rb

(D) Na

Question 63.

In the electrochemical cell:-
Zn | $ZnSO_4$ (0.01 M) || $CuSO_4$ (1.0 M) | Cu, the emf of this Daniell cell is E_1. When the concentration of $ZnSO_4$ is changed to 1.0 M and that of $CuSO_4$ changed to 0.01 M, the emf changes to E_2. From the following, which one is the relationship between E_1 and E_2? (Given, RT/F = 0.059)

[4 Marks]

(A) $E_1 < E_2$

(B) $E_1 > E_2$

(C) $E_1 = E_2$

(D) $E_2 = 0 \neq E_1$

Question 64.

Mechanism of a hypothetical reaction
$X_2 + Y_2 \rightarrow 2XY$ is given below:

(i) $X_2 \rightarrow X + X$ (fast)
(ii) $X + Y_2 \rightleftharpoons XY + Y$ (slow)
(iii) $X + Y \rightarrow XY$ (fast)
The overall order of the reaction will be:

[4 Marks]

(A) 1.5

(B) 1

(C) 2

(D) 0

Question 65.

A first order reaction has a specific reaction rate of 10^{-2} s^{-1}. How much time will it take for 20 g of the reactant to reduce to 5 g?

[4 Marks]

(A) 138.6 sec

(B) 346.5 sec

(C) 693.0 sec

(D) 238.6 sec

Question 66.

Which one of the following statements is not correct?

[4 Marks]

(A) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium

(B) Enzymes catalyse mainly bio-chemical reactions

(C) Catalyst does not initiate any reaction

(D) Coenzymes increase the catalytic activity of enzyme

Question 67.

Extraction of gold and silver involves leaching with CN^- ion. Silver is later recovered by

[4 Marks]

(A) distillation

(B) zone refining

(C) displacement with Zn

(D) liquation

Question 68.

In which pair of ions both the species contain S–S bond?

[4 Marks]

(A) $S_4O_6^{2-}$, $S_2O_7^{2-}$

(B) $S_2O_7^{2-}$, $S_2O_8^{2-}$

(C) $S_4O_6^{2-}$, $S_2O_3^{2-}$

(D) $S_2O_7^{2-}$, $S_2O_3^{2-}$

Question 69.

Name the gas that can readily decolourise acidified $KMnO_4$ solution :

[4 Marks]

(A) NO_2

(B) CO_2

(C) SO_2

(D) P_2O_5

Question 70.

The reason for greater range of oxidation states in actinoids is attributed to :

[4 Marks]

(A) actinoid contraction

(B) 5f, 6d and 7s levels having comparable energies

(C) 4f and 5d levels being close in energies

(D) the radioactive nature of actinoids

Question 71.

The correct order of the stoichiometries of AgCl formed when $AgNO_3$ in excess is treated with the complexes $CoCl_3 \cdot 6NH_3$, $CoCl_3 \cdot 5NH_3$, $CoCl_3 \cdot 4NH_3$ respectively is :

[4 Marks]

(A) 3AgCl, 1AgCl, 2AgCl

(B) 3AgCl, 2AgCl, 1AgCl

(C) 2AgCl, 3AgCl ,1AgCl,

(D) 1AgCl, 3AgCl, 2AgCl

Question 72.

$HgCl_2$ and I_2 both when dissolved in water containing I^- ions, the pair of species formed is :

[4 Marks]

(A) HgI_4^{2-}, I_3^-

(B) HgI_2, I^-

(C) HgI_2, I_3^-

(D) Hg_2I_2, I^-

Question 73.

Correct increasing order for the wavelengths of absorption in the visible region the complexes of Co^{3+} is :-

[4 Marks]

(A) $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(H_2O)_6]^{3+}$

(B) $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(H_2O)_6]^{3+}$

(C) $[Co(H_2O)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$

(D) $[Co(H_2O)_6]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$

Question 74.

Pick out the correct statement with respect to $[Mn(CN)_6]^{3-}$:-

[4 Marks]

(A) It is sp^3d^2 hybridised and tetrahedral

(B) It is sp^3d^2 hybridised and octahedral

(C) It is d^2sp^3 hybridised and octahedral

(D) It is dsp^2 hybridised and square planar

Question 75.

An example of sigma bonded organometallic compound is :

[4 Marks]

(A) Ruthenocene

(B) Cobaltocene

(C) Ferrocene

(D) Grignard's reagent

Question 76.

Which one is the most acidic compound ?

[4 Marks]

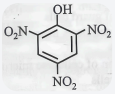
(A)



(B)



(C)



(D)



Question 77.

The heating of phenyl-methyl ethers with HI produces

[4 Marks]

(A) Iodobenzene

(B) Phenol

(C) Benzene

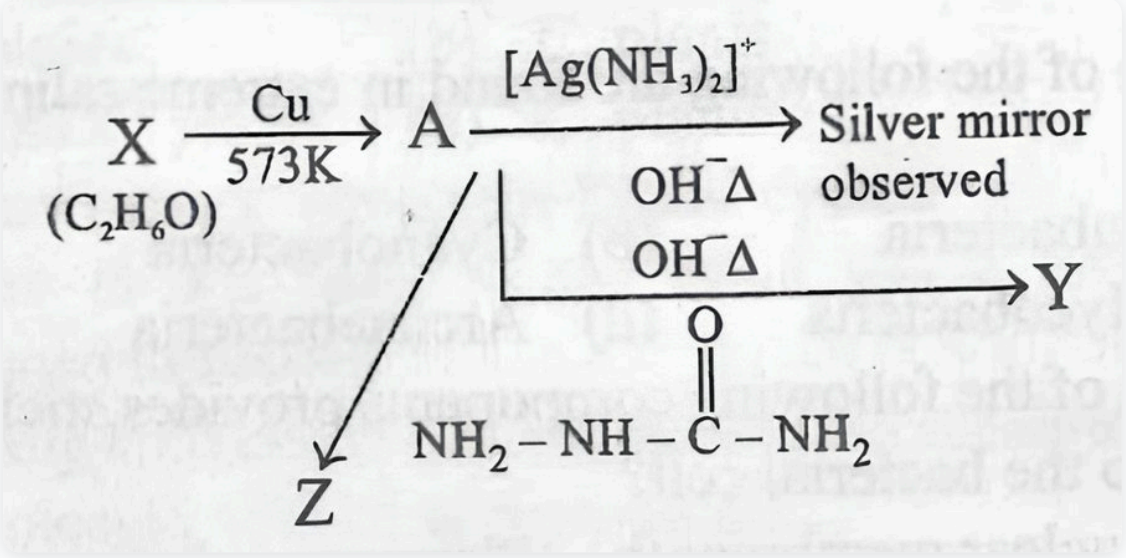
(D) Ethyl chlorides

Question 78.

Consider the reactions :-

Identify A, X, Y and Z

[4 Marks]



(A) A–Methoxymethane, X–Ethanoic acid, Y–Acetate ion, Z–Hydrazine.

(B) A–Ethanal, X–Ethanol, Y–But-2-enal, Z–Semicarbazone.

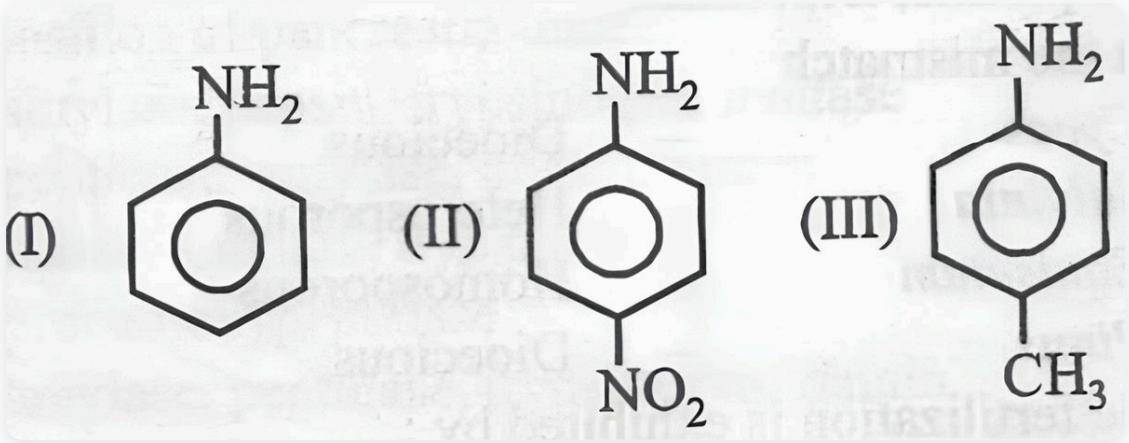
(C) A–Ethanol, X–Acetaldehyde, Y–Butanone, Z–Hydrazone.

(D) A–Methoxymethane, X–Ethanol, Y–Ethanoic acid, Z–Semicarbazide.

Question 79.

The correct increasing order of basic strength for the following compounds is :

[4 Marks]



(A) lll

(B) lll

(C) ll

(D) ll

Question 80.

Which of the following reactions is appropriate for converting acetamide to methanamine?

[4 Marks]

(A) Gabriel's phthalimide synthesis

(B) Carbylamine reaction

(C) Stephens reaction

(D) Hoffmann hypobromamide reaction

Question 81.

Which of the following statements is not correct :

[4 Marks]

(A) Ovalbumin is a simple food reserve in egg-white

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

(C) Denaturation makes the proteins more active

(D) Insulin maintains sugar level in the blood of human body

Question 82.

Mixture of chloroxylenol and terpineol acts as:

[4 Marks]

(A) analgesic

(B) antibiotic

(C) antiseptic

(D) antipyretic

Question 83.

The heating of phenyl-methyl ethers with HI produces

[4 Marks]

(A) Ethyl chlorides

(B) Phenol

(C) Benzene

(D) Iodobenzene

Question 84.

Which of the following are found in extreme saline conditions?

[4 Marks]

(A) Archaebacteria

(B) Mycobacteria

(C) Cyanobacteria

(D) Eubacteria

Question 85.

Which of the following components provides sticky character to the bacterial cell?

[4 Marks]

(A) Plasma membrane

(B) Cell wall

(C) Glycocalyx

(D) Nuclear membrane

Question 86.

Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen?

[4 Marks]

(A) Nostoc

(B) Bacillus

(C) Pseudomonas

(D) Mycoplasma

Question 87.

Viroids differ from viruses in having:

[4 Marks]

(A) RNA molecules without protein coat

(B) DNA molecules with protein coat

(C) RNA molecules with protein coat

(D) DNA molecules without protein coat

Question 88.

An example of colonial alga is:

[4 Marks]

(A) Spirogyra

(B) Chlorella

(C) Ulothrix

(D) Volvox

Question 89.

Zygotic meiosis is characteristic of:

[4 Marks]

(A) Fucus

(B) Funaria

(C) Chlamydomonas

(D) Marchantia

Question 90.

Life cycle of *Ectocarpus* and *Fucus* respectively are:

[4 Marks]

(A) Diplontic, Haplodiplontic

(B) Haplodiplontic, Haplontic

(C) Haplodiplontic, Diplontic

(D) Haplontic, Diplontic

Question 91.

Select the mismatch

[4 Marks]

(A) Cycas - Dioecious

(B) Salvinia — Heterosporous

(C) Pinus — Dioecious

(D) Equisetum - Homosporous

Question 92.

Double fertilization is exhibited by :

[4 Marks]

(A) Gymnosperms

(B) Fungi

(C) Algae

(D) Angiosperms

Question 93.

In case of poriferans, the spongocoel is lined with flagellated cells called:

[4 Marks]

(A) oscula

(B) choanocytes

(C) mesenchymal cells

(D) ostia

Question 94.

An important characteristic that Hemichordates share with

Chordates is

[4 Marks]

(A) Absence of notochord

(B) Pharynx without gill slits

(C) Pharynx with gill slits

(D) Ventral tubular nerve cord

Question 95.

Which among these is the correct combination of aquatic

mammals?

[4 Marks]

(A) Seals, Dolphins, Sharks

(B) Trygon, Whales, Seals

(C) Whales, Dolphins, Seals

(D) Dolphins, Seals, Trygon

Question 96.

Plants which produce characteristic pneumatophores and show

vivipary belong to:

[4 Marks]

(A) Halophytes

(B) Psammophytes

(C) Mesophytes

(D) Hydrophytes

Question 97.

In Bougainvillea thoms are the modifications of

[4 Marks]

(A) Stipules

(B) Leaf

(C) Stem

(D) Adventitious root

Question 98.

Coconut fruit is a:

[4 Marks]

(A) Drupe

(B) Nut

(C) Capsule

(D) Bemry

Question 99.

The morphological nature of the edible part of coconut is;

[4 Marks]

(A) Perisperm

(B) Pericarp

(C) Cotyledon

(D) Endosperm

Question 100.

Root hairs develop from the region of

[4 Marks]

(A) root cap

(B) Elongation

(C) Meristematic activity

(D) Maturation

Question 101.

'Which of the following is made up of dead cells?

[4 Marks]

(A) Xylem parenchyma

(B) Phloem

(C) Collenchyma

(D) Phellem

Question 102.

Which of the following facilitates opening of stomatal aperture?

[4 Marks]

(A) Decrease in turgidity of guard cells

(B) Radial orientation of cellulose micro-fibrils in the cell wall of guard cells

(C) Longitudinal orientation of cellulose microfibrils in the cell wall of guard cells

(D) Contraction of outer wall of guard cells

Question 103.

The vascular cambium normally gives rise to :

[4 Marks]

(A) Primary phloem

(B) Secondary xylem

(C) Periderm

(D) Phelloderm

Question 104.

Frog's heart when taken out of the body continues to beat for sometime.Select the best option from the following statements.

(A) Frog is a poikilotherm.

(B) Frog does not have any coronary circulation.

(C) Heart is "myogenic" in nature.

(D) Heart is autoexcitable

[4 Marks]

(A) (C) and (D)

(B) Only (c)

(C) Only (D)

(D) (A) and (B)

Question 105.

which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP?

[4 Marks]

(A) Lysosome

(B) Chloroplast

(C) Mitochondrion

(D) Ribosome

Question 106.

About 98 percent of the mass of every living organism is composed of just six elements including carbon, hydrogen, nitrogen, oxygen and

[4 Marks]

(A) magnesium and sodium

(B) sulphur and magnesium

(C) calcium and phosphorus

(D) phosphorus and sulphur

Question 107.

Which one of the following statements is correct, with reference to enzymes?

[4 Marks]

(A) Holoenzyme = Apoenzyme + Coenzyme

(B) Coenzyme = Apoenzyme + Holoenzyme

(C) Apoenzyme = Holoenzyme + Coenzyme

(D) Holoenzyme = Coenzyme + Co-factor

Question 108.

Which of the following options gives the correct sequence of events during mitosis?

[4 Marks]

(A) Condensation → nuclear membrane disassembly → arrangement at equator → centromere division → segregation → telophase

(B) Condensation → crossing over → nuclear membrane disassembly → segregation → telophase

(C) Condensation → arrangement at equator → centromere division → segregation → telophase

(D) Condensation → nuclear membrane disassembly → crossing over → segregation → telophase

Question 109.

Which of the following are not polymeric?

[4 Marks]

(A) Nucleic acids

(B) Lipids

(C) Polysaccharides

(D) Proteins

Question 110.

DNA replication in bacteria occurs

[4 Marks]

(A) Prior to fission

(B) During S phase

(C) Just before transcription

(D) Within nucleolus

Question 111.

Anaphase Promoting Complex (APC) is a protein degradation machinery necessary for proper mitosis of animal cells. If APC is defective in a human cell, which of the following is expected to occur?

[4 Marks]

(A) Chromosomes will not segregate

(B) Chromosomes will be fragmented

(C) Chromosomes will not condense

(D) Recombination of chromosome arms will occur

Question 112.

The water potential of pure water is

[4 Marks]

(A) Less than zero

(B) More than zero but less than one

(C) More than one

(D) Zero

Question 113.

With reference to factors affecting the rate of photosynthesis, which of the following statements is not correct?

[4 Marks]

(A) Increasing atmospheric CO_2 concentration up to 0.05% can enhance CO_2 fixation rate

(B) C_3 plants respond to higher temperatures with enhanced photosynthesis while C_4 plants have much lower temperature optimum

(C) Tomato is a greenhouse crop which can be grown in CO_2-enriched atmosphere for higher yield

(D) Light saturation for CO_2 fixation occurs at 10% of full sunlight

Question 114.

Phosphoenol Pyruvate (PEP) is the primary CO_2 acceptor in:

[4 Marks]

(A) C_4 plants

(B) C_2 plants

(C) C_3 and C_4 plants

(D) C_3 plants

Question 115.

Which statement is wrong for Kreb's cycle?

[4 Marks]

(A) During the conversion of succinyl CoA to succinic acid, a molecule of GTP is synthesised.

(B) There is one point in the cycle where FAD^+ is reduced to $FADH_2$.

(C) There are three points in the cycle where NAD^+ is reduced to $NADH + H^+$.

(D) The cycle starts with condensation of acetyl group (acetyl CoA) with pyruvic acid to yield citric acid.

Question 116.

Fruit and leaf drop at early stages can be prevented by the application of

[4 Marks]

(A) Cytokinins

(B) Gibberellic acid

(C) Auxins

(D) Ethylene

Question 117.

Which cells of "Crypts of Lieberkuhn" secrete antibacterial lysozyme?

[4 Marks]

(A) Paneth cells

(B) Zymogen cells

(C) Kupffer cells

(D) Argentaffin cells

Question 118.

The hepatic portal vein drains blood to liver from:

[4 Marks]

(A) Kidneys

(B) Intestine

(C) Heart

(D) Stomach

Question 119.

A baby boy aged two years is admitted to play school and passes through a dental check-up. The dentist observed that the baby had twenty teeth. Which teeth were absent?

[4 Marks]

(A) Incisors

(B) Molars

(C) Pre-molars

(D) Canines

Question 120.

Which of the following options best represents the enzyme composition of pancreatic juice?

[4 Marks]

(A) amylase, pepsin, trypsinogen, maltase

(B) peptidase, amylase, pepsin, rennin

(C) lipase, amylase, trypsinogen, procarboxypeptidase

(D) amylase, peptidase, trypsinogen, rennin

Question 121.

Lungs are made up of air-filled sacs, the alveoli. They do not collapse even after forceful expiration, because of:

[4 Marks]

(A) Inspiratory Reserve Volume

(B) Tidal Volume

(C) Residual Volume

(D) Expiratory Reserve Volume

Question 122.

Adult human RBCs are enucleated. Which of the following statement(s) is/are most appropriate explanation for this feature?

(1) They do not need to reproduce
(2) They are somatic cells
(3) They do not metabolize
(4) All their internal space is available for oxygen transport

[4 Marks]

(A) only (1).

(B) only (4).

(C) (1), (3) and (4).

(D) (2) and (3).

Question 123.

Which of the following statements is correct?

[4 Marks]

(A) The descending limb of loop of Henle is permeable to electrolytes.

(B) The ascending limb of loop of Henle is impermeable to water.

(C) The descending limb of loop of Henle is impermeable to water.

(D) The ascending limb of loop of Henle is permeable to water.

Question 124.

The pivot joint between atlas and axis is a type of:

[4 Marks]

(A) Cartilaginous joint

(B) Synovial joint

(C) Fibrous joint

(D) Saddle joint

Question 125.

X' pairs of ribs in humans and 'Y' pairs are true ribs. Select the option that correctly represents values of X and Y and provides their explanation:

[4 Marks]

(A) X – 24, Y – 12 True ribs are dorsally attached to vertebral column but are free on ventral side.

(B) X – 12, Y – 5 True ribs are attached dorsally to vertebral column and sternum.

(C) X – 24, Y – 7 True ribs are dorsally attached to vertebral column but are free on ventral side

(D) X – 12, Y – 7 True ribs are attached dorsally to vertebral column and ventrally to the sternum.

Question 126.

Myelin sheath is produced by:

[4 Marks]

(A) Oligodendrocytes and Osteoclasts

(B) Astrocytes and Schwann cells

(C) Schwann cells and Oligodendrocytes

(D) Osteoclasts and Astrocytes

Question 127.

Receptor sites for neurotransmitter are present on:

[4 Marks]

(A) Pre-synaptic membrane

(B) Tips of axons

(C) Post-synaptic membrane

(D) Membrane of synaptic vesicles

Question 128.

Good vision depends on adequate intake of carotene rich food.
Select the best option from the following statements:

(i) Vitamin A derivatives are formed from carotene
(ii) The photopigments are embedded in the membrane of the inner segment
(iii) Retinal is a derivative of Vitamin A
(iv) Retinal is a light absorbing part of all the visual photopigments

[4 Marks]

(A) (i) and (iv)

(B) (ii), (iii) and (iv)

(C) (i) and (iii)

(D) (i), (iii) and (iv)

Question 129.

A decrease in blood pressure / volume will not cause the release of:

[4 Marks]

(A) Aldosterone

(B) Atrial natriuretic factor

(C) ADH

(D) Renin

Question 130.

Attractants and rewards are required for:

[4 Marks]

(A) Entomophily

(B) Hydrophily

(C) Cleistogamy

(D) Anemophily

Question 131.

Flowers which have single ovule in the ovary and are packed into inflorescence are usually pollinated by:

[4 Marks]

(A) Bat

(B) Water

(C) Bee

(D) Wind

Question 132.

A dioecious flowering plant prevents both:

[4 Marks]

(A) Geitonogamy and xenogamy

(B) Autogamy and geitonogamy

(C) Autogamy and xenogamy

(D) Cleistogamy and xenogamy

Question 133.

Functional megaspore in an angiosperm develops into?

[4 Marks]

(A) Embryo

(B) Ovule

(C) Embryo sac

(D) Endosperm

Question 134.

Capacitation occurs in:

[4 Marks]

(A) Epididymis

(B) Female reproductive tract

(C) Rete testis

(D) Vas deferens

Question 135.

The function of copper ions in copper releasing IUD's is:

[4 Marks]

(A) They inhibit ovulation

(B) They make uterus unsuitable for implantation

(C) They suppress sperm motility and fertilising capacity of sperms

(D) They inhibit gametogenesis

Question 136.

In case of a couple where the male is having a very low sperm count, which technique will be suitable for fertilisation?

[4 Marks]

(A) Gamete intracytoplasmic fallopian transfer

(B) Artificial Insemination

(C) Intracytoplasmic sperm injection

(D) Intrauterine transfer

Question 137.

The genotypes of husband and wife are I^AI^B and I^Ai. Among the blood types of their children, how many different genotypes and phenotypes are possible?

[5 Marks]

(A) 3 genotypes ; 4 phenotypes

(B) 4 genotypes ; 3 phenotypes

(C) 4 genotypes ; 4 phenotypes

(D) 3 genotypes ; 3 phenotypes

Question 138.

Among the following characters, which one was not considered by Mendel in his experiments on pea?

[4 Marks]

(A) Pod – Inflated or Constricted

(B) Pod – Inflated or Constricted

(C) Seed – Green or Yellow

(D) Trichomes – Glandular or non-glandular

Question 139.

Which one from those given below is the period for Mendel's hybridisation experiments?

[4 Marks]

(A) 1856 – 1863

(B) 1870 – 1877

(C) 1857 – 1869

(D) 1840 – 1850

Question 140.

Thalassemia and sickle cell anemia are caused due to a problem in globin molecule synthesis. Select the correct statement:

[4 Marks]

(A) Both are due to a qualitative defect in globin chain synthesis

(B) Sickle cell anemia is due to a quantitative problem of globin molecules

(C) Thalassemia is due to less synthesis of globin molecules

(D) Both are due to a quantitative defect in globin chain synthesis

Question 141.

A disease caused by an autosomal primary non-disjunction is:

[4 Marks]

(A) Turner's Syndrome

(B) Klinefelter's Syndrome

(C) Sickle Cell Anemia

(D) Down's Syndrome

Question 142.

The final proof for DNA as the genetic material came from the experiments of:

[4 Marks]

(A) Griffith

(B) Avery, Macleod and McCarty

(C) Har Gobind Khorana

(D) Hershey and Chase

Question 143.

DNA fragments are:

[4 Marks]

(A) Positively charged

(B) Either positively or negatively charged depending on their size

(C) Neutral

(D) Negatively charged

Question 144.

Which of the following RNAs should be most abundant

in animal cell?

[4 Marks]

(A) mi-RNA

(B) rRNA

(C) t-RAN

(D) m-RNA

Question 145.

The association of histone H1 with a nucleosome indicates:

[4 Marks]

(A) DNA replication is occurring.

(B) The DNA is condensed into a Chromatin Fibre.

(C) The DNA double helix is exposed.

(D) Transcription is occurring.

Question 146.

If there are 999 bases in an RNA that codes for a protein with 333 amino acids, and the base at position 901 is deleted such that the length of the RNA becomes 998 bases, how many codons will be altered?

[4 Marks]

(A) 11

(B) 33

(C) 1

(D) 333

Question 147.

During DNA replication, Okazaki fragments are used to

elongate:

[4 Marks]

(A) The leading strand towards replication fork.

(B) The lagging strand towards replication fork.

(C) The lagging strand away from the replication fork.

(D) The leading strand away from replication fork .

Question 148.

Spliceosomes are not found in cells of;

[4 Marks]

(A) Bacteria

(B) Plants

(C) Animals

(D) Fungi

Question 149.

Which of the following represents order of Horse'?

[4 Marks]

(A) Perissodactyla

(B) Caballus

(C) Equidae

(D) Ferus

Question 150.

Transplantation of tissues/organs fails often due to non-acceptance by the patient's body. Which type of immune-response is responsible for such rejections

[4 Marks]

(A) Physiological immune response

(B) Hormonal immune response

(C) Autoimmune response

(D) Cell-mediated immune response

Question 151.

MALT constitutes about ..... percent of the lymphoid tissue in human body.

[4 Marks]

(A) 50%

(B) 10%

(C) 70%

(D) 20%

Question 152.

Homozygous pure lines in cattle can be obtained by:

[4 Marks]

(A) mating of individuals of different species.

(B) mating of related individuals of same breed.

(C) mating of unrelated individuals of same breed.

(D) mating of individuals of different breed.

Question 153.

‘Which of the following in sewage treatment removes suspended solids?

[4 Marks]

(A) Sludge treatment

(B) Secondary treatment

(C) Primary treatment

(D) Tertiary treatment

Question 154.

‘Which of the following is correctly matched for the product produced by them ?

[4 Marks]

(A) Penicillium notatum : Acetic acid

(B) Methanobacterium : Lactic acid

(C) Sacchromyces cerevisiae : Ethanol

(D) Acetobacter aceti : Antibiotics

Question 155.

The DNA fragments separated on an agarose gel can be visualised after staining with:

[4 Marks]

(A) Acetocarmine

(B) Aniline blue

(C) Bromophenol blue

(D) Ethidium bromide

Question 156.

A gene whose expression helps to identify transformed cell is known as :

[4 Marks]

(A) Plasmid

(B) Vector

(C) Selectable marker

(D) Structural gene

Question 157.

‘What is the criterion for DNA fragments movement on agarose gel during gel electrophoresis?

[4 Marks]

(A) Negatively charged fragments do not move

(B) Positively charged fragments move to farther end

(C) The larger the fragment size, the farther it moves

(D) The smaller the fragment size, the farther it moves

Question 158.

The process of separation and purification of expressed protein before marketing is called:

[4 Marks]

(A) Downstream processing

(B) Postproduction processing

(C) Bioprocessing

(D) Upstream processing

Question 159.

Presence of plants arranged into well defined vertical layers depending on their height can be seen best in:

[4 Marks]

(A) Tropical Rain Forest

(B) Grassland

(C) Tropical Savannah

(D) Temperate Forest

Question 160.

Asymptote in a logistic growth curve is obtained when :

[4 Marks]

(A) K>N

(B) K=N

(C) The value of ‘r’ approaches zero

(D) K

Question 161.

Mycorrhizae are the example of :

[4 Marks]

(A) Amensalism

(B) Antibiosis

(C) Mutualism

(D) Fungistasis

Question 162.

Which ecosystem has the maximum biomass?

[4 Marks]

(A) Forest ecosystem

(B) Pond ecosystem

(C) Lake ecosystem

(D) Grassland ecosystem

Question 163.

Alexander Von Humboldt described for the first time:

[4 Marks]

(A) Species-Area relationships

(B) Population Growth equation

(C) Laws of limiting factor

(D) Ecological Biodiversity

Question 164.

‘Which one of the following statements is not valid for aerosols?

[4 Marks]

(A) They are harmful to human health

(B) They have negative impact on agricultural land

(C) They cause increased agricultural productivity

(D) They alter rainfall and monsoon patterns

Question 165.

Artificial selection to obtain cows yielding higher milk

output represents :

[4 Marks]

(A) Directional as it pushes the mean of the character in one direction

(B) Disruptive as it splits the population into two, one yielding higher output and the other lower output

(C) Stabilizing followed by disruptive as it stabilizes the population to produce higher yielding cows

(D) Stabilizing selection as it stabilizes this character in the population

Question 166.

Select the mismatch :

[4 Marks]

(A) Rhodospirillum - Mycorrhiza

(B) Rhizobium - Alfalfa

(C) Frankia - Alnus

(D) Anabaena - Nitrogen fixer

Question 167.

Which one of the following is related to Ex-situ conservation of threatened animals and plants ?

[4 Marks]

(A) Wildlife safari parks

(B) Amazon rainforest

(C) Himalayan region

(D) Biodiversity hotspots

Question 168.

A temporary endocrine gland in the human body is:

[4 Marks]

(A) Pineal gland

(B) Corpus allatum

(C) Corpus cardiacum

(D) Corpus luteum

Question 169.

Match the following sexually transmitted diseases (Column-I) with their causative agent (Column-II) and select

the correct option :

[4 Marks]

Column-I	Column-II
(A) Gonorrhea	(i) HIV
(B) Syphilis	(ii) *Neisseria*
(C) Genital Warts	(iii) *Treponema*
(D) AIDS	(iv) Human papilloma-Virus

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

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

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

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

Question 170.

'Which of the following in sewage treatment removes suspended solids

[4 Marks]

(A) Secondary treatment

(B) Sludge treatment

(C) Primary treatment

(D) Tertiary treatmen

Question 171.

Select the correct route for the passage of sperms in male frogs:

[4 Marks]

(A) Testes → Vasa efferentia → Bidder's canal → Ureter → Cloaca

(B) Testes → Vasa efferentia → Kidney → Bidder's canal → Urinogenital duct → Cloaca

(C) Testes —> Vasa efferentia —> Kidney —> Seminal Vesicle—> Urinogenital duct—> Cloaca

(D) Testes → Bidder's canal → Kidney → Vasa efferentia → Urinogenital duct → Cloaca

Question 172.

GnRH, a hypothalamic hormone, needed in reproduction, acts on:

[4 Marks]

(A) anterior pituitary gland and stimulates secretion of LH and FSH.

(B) posterior pituitary gland and stimulates secretion of LH and relaxin.

(C) anterior pituitary gland and stimulates secretion of LH and oxytocin.

(D) posterior pituitary gland and stimulates secretion of oxytocin and FSH.

Question 173.

Identify the wrong statement in context of heartwood:

[4 Marks]

(A) Organic compounds are deposited in it

(B) It comprises dead elements with highly lignified walls

(C) It conducts water and minerals efficiently

(D) It is highly durable

Question 174.

Consider a drop of rain water having mass 1 g falling from a height of 1 km. It hits the ground with a speed of 50 m/s. Take 'g' constant with a value 10 m/s². The work done by the(i) gravitational force and

(ii) resistive force of air is

[4 Marks]

(A) (i) 1.25 J (ii) −8.25 J

(B) (i) 10 J (ii) −8.75 J

(C) (i) −10 J (ii) −8.25 J

(D) (i) 100 J (ii) 8.75 J

Question 175.

Which of the following statements are correct?

(A) Centre of mass of a body always coincides with the centre of gravity of the body.
(B) Centre of mass of a body is the point at which the total gravitational torque on the body is zero.
(C) A couple on a body produce both translational and rotation motion in a body.
(D) Mechanical advantage greater than one means that small effort can be used to lift a large load.

[4 Marks]

(A) (B) and (D)

(B) (C) and (D)

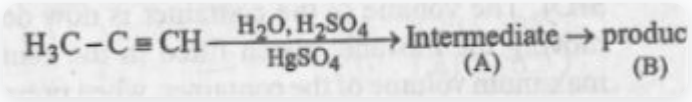
(C) (B) and (C)

(D) (A) and (B)

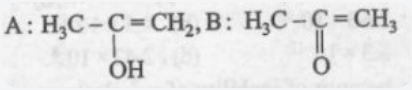
Question 176.

Predict the correct intermediate and product in the following reaction

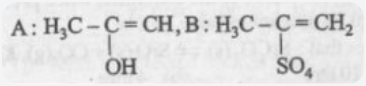
[4 Marks]



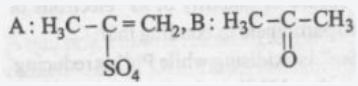
(A)



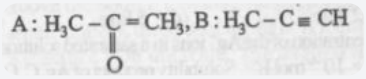
(B)



(C)



(D)



Question 177.

Match the interhalogen compounds of column-I with the geometry in column II and assign the correct code.

[4 Marks]

	Column-I		Column-II
1.	XX'	(i)	T-shape
2.	XX'_3	(ii)	Pentagonal bipyramidal
3.	XX'_5	(iii)	Linear
4.	XX'_7	(iv)	Square-pyramidal
		(v)	Tetrahedral

(A) 1-iii 2-iv 3-i 4-ii

(B) 1-iv 2-iii 3-ii 4-i

(C) 1-v 2-iv 3-iii 4-ii

(D) 1-iii 2-i 3-iv 4-ii

Question 178.

Which one is the most acidic compound ?

[4 Marks]

(A)



(B)



(C)



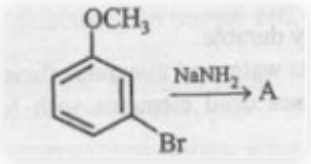
(D)



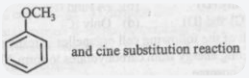
Question 179.

Identify A and predict the type of reaction

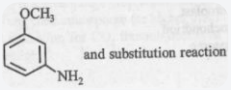
[4 Marks]



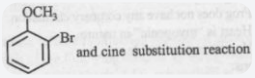
(A)



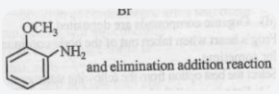
(B)



(C)



(D)

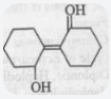


Question 180.

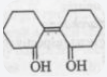
out of the following, which is the product formed when cyclohexanone undergoes aldol condensation followed by heating ?

[4 Marks]

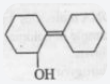
(A)



(B)



(C)



(D)

