NEET-UG EXAMINATION PAPER-2018

(Solved)

Time allowed : 3 hours | Maximum Marks : 720

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 student measured the diameter of a small steel ball using a screw gauge of least count 0.001 cm. The main scale reading is 5 mm and zero of circular scale division coincides with 25 divisions above the reference level. If screw gauge has a zero error of –0.004 cm, the diameter of ball is

[4 Marks]

(A) 0.529 cm

(B) 0.053 cm

(C) 0.525 cm

(D) 0.521 cm

Question 2.

The moment of force on a force, $\vec{?} = 4\hat{i} + 5\hat{j} - 6\hat{k}$ at (2, 0, –3), about the point

(2, –2, –2), is given by

[4 Marks]

(A) $-8\hat{i} - 4\hat{j} - 7\hat{k}$

(B) $-7\hat{i} - 8\hat{j} - 4\hat{k}$

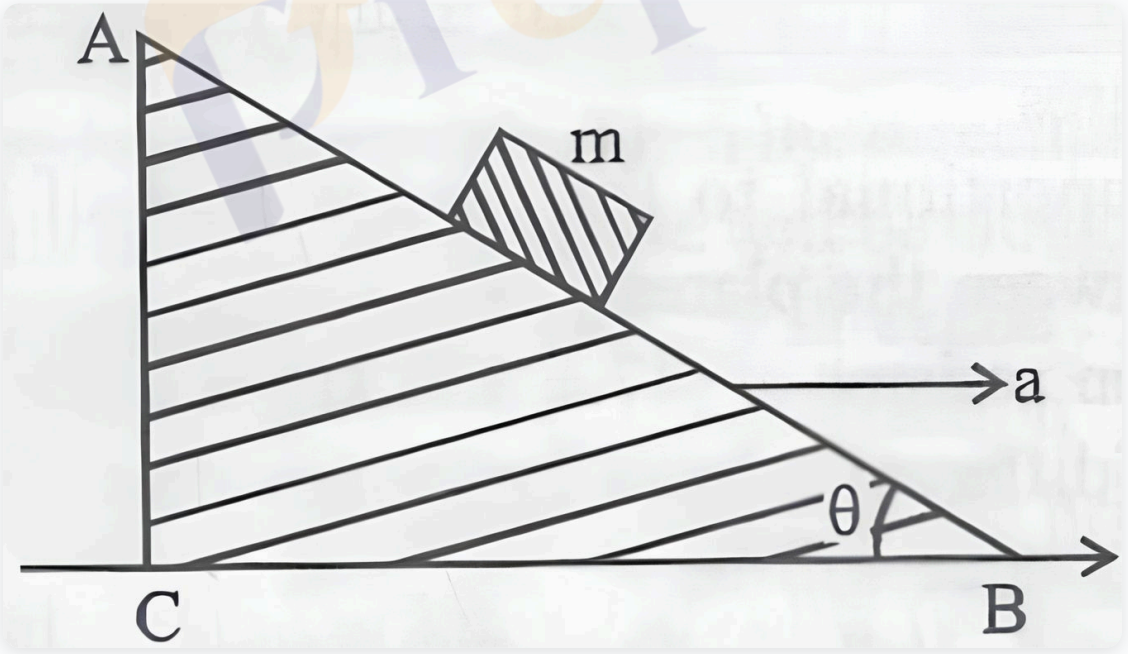
(C) $-7\hat{i} - 4\hat{j} - 8\hat{k}$

(D) $-4\hat{i} - \hat{j} - 8\hat{k}$

Question 3.

A block of mass m is placed on a smooth inclined wedge ABC of inclination θ as shown in the figure. The wedge is given an acceleration a towards the right. The relation between a and θ for the block to remain stationary on the wedge is

[4 Marks]



(A) a = g tan θ

(B) a = g /cosec θ

(C) a = g cos θ

(D) a = g/ sin θ

Question 4.

A moving block having mass m_1 collides with another stationary block having mass 4m. The lighter block comes to rest after collision. When the initial velocity of lighter block is v, then the value of coefficient of restitution (e) will be

[4 Marks]

(A) 0.25

(B) 0.8

(C) 0.5

(D) 0.4

Question 5.

A solid sphere is rotating freely about its symmetry axis in free space. The radius of the sphere is increased keeping its mass same. Which of the following physical quantities would remain constant for the sphere?

[4 Marks]

(A) Rotational kinetic energy

(B) Angular momentum

(C) Angular velocity

(D) Moment of inertia

Question 6.

A solid sphere is in rolling motion. In rolling motion a body possesses translational kinetic energy (K_t) as well as rotational kinetic energy (K_r) simultaneously. The ratio $K_t : (K_t + K_r))$ for the sphere is

[4 Marks]

(A) 5:7

(B) 10:7

(C) 7:10

(D) 2:5

Question 7.

Three objects A (a solid sphere), B (a thin circular disk) and C (a circular ring), each have the same mass M and radius R. They all spin with the same angular speed ω about their own symmetry axes. The amount of work (W) required to bring them to rest, would satisfy the relation

[4 Marks]

(A) $W_A > W_B > W_C$

(B) $W_C > W_B > W_A$

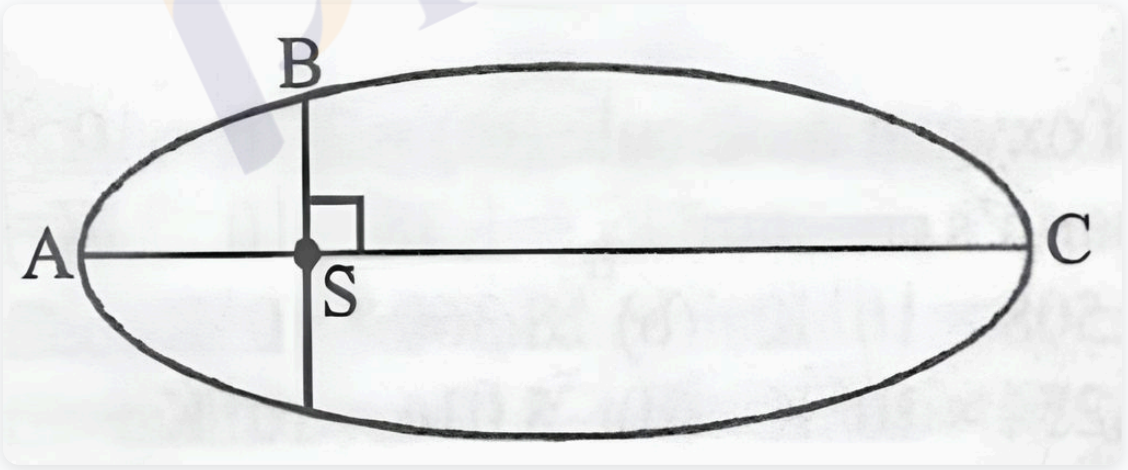
(C) $W_A > W_C > W_B$

(D) $W_B > W_A > W_C$

Question 8.

The kinetic energies of a planet in an elliptical orbit about the Sun, at positions A, B and C are K_A , K_B, and K_C respectively. AC is the major axis and SB is perpendicular to AC at the position of the Sun S as shown in the figure. Then

[4 Marks]



(A) $K_A < K_B < K_C$

(B) $K_A > K_B > K_C$

(C) $K_B > K_A > K_C$

(D) $K_B < K_A < K_C$

Question 9.

Two wires are made of the same material and have the same volume. The first wire has cross-sectional area A and the second wire has cross-sectional area 3A. If the length of

the first wire is increased by Δl on applying a force F, how much force is needed to stretch the second 'wire by the same amount?

[4 Marks]

(A) 6F

(B) 9F

(C) 4F

(D) F

Question 10.

A small sphere of radius 'r' falls from rest in a viscous liquid. As a result, heat is produced due to viscous force. The rate of production of heat when the sphere attains its terminal velocity, is proportional to

[4 Marks]

(A) r^4

(B) r^2

(C) r^5

(D) r^3

Question 11.

The power radiated by a black body is P and it radiates maximum energy at wavelength,λ_0 If the temperature of the black body is now changed so that it radiates maximum energy at wavelength 3/4 λ_0 ,the power radiated by it becomes nP. The value of n is

[4 Marks]

(A) 3/4

(B) 4/3

(C) 256/81

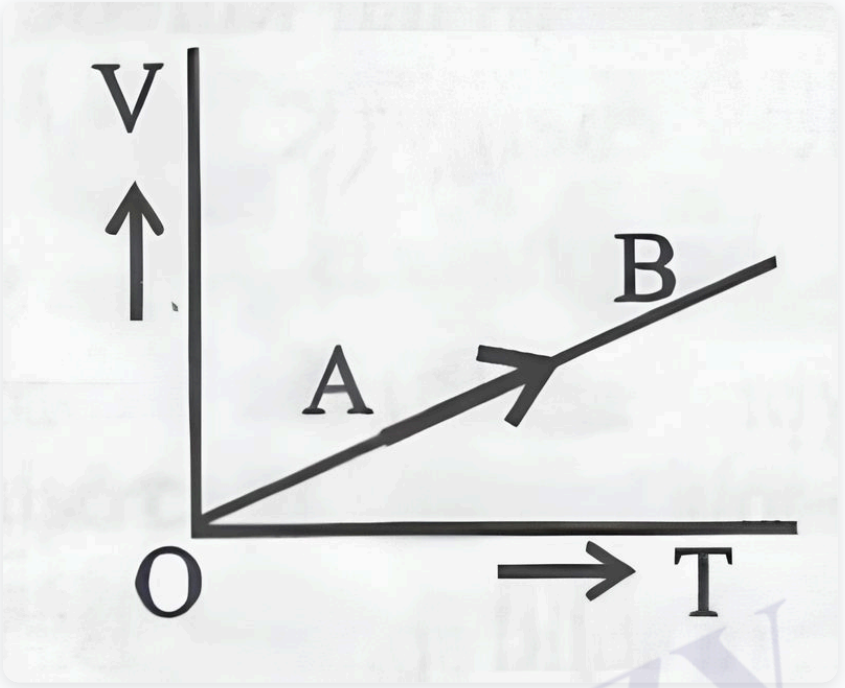
(D) 81/256

Question 12.

The volume (V) of a monatomic gas varies with its temperature (T), as shown in the graph. The ratio of work done by the gas, to the heat absorbed by it, when it undergoes a

change from state A to state B, is

[4 Marks]



(A) 1/3

(B) 2/3

(C) 2/7

(D) 2/5

Question 13.

The efficiency of an ideal heat engine working between the freezing point and boiling point of water, is

[4 Marks]

(A) 12.5%

(B) 26.8%

(C) 6.25%

(D) 20%

Question 14.

At what temperature will the rms speed of oxygen molecules become just sufficient for escaping from the Earth's atmosphere?

(Given:

Mass of oxygen molecule (m)=2.76 x 10^{-26}kg

Boltzmann's constant k_B = 1.38 x 10^{-23} JK^{-1})

[4 Marks]

(A) 1.254x10^4K

(B) 5.016x 10^4K

(C) 2.508x10^4K

(D) 8.360x 10^4 K

Question 15.

A pendulum is hung from the roof of a sufficiently high building and is moving freely to and fro like a simple harmonic oscillator. The acceleration of the bob of the pendulum is 20 m/s^2 at a distance of 5 m from the mean position. The time period of oscillation is

[4 Marks]

(A) 1s

(B) 2s

(C) πs

(D) 2πs

Question 16.

A tuning fork is used to produce resonance in a glass tube. The length of the air column in this tube can be adjusted by a variable piston. At room temperature of 27°C two successive resonances are produced at 20 cm and 73 cm of column length. If the frequency of the tuning fork 320 Hz, the velocity of sound in air at 27°C is

[4 Marks]

(A) 350 m/s

(B) 300 m/s

(C) 330 m/s

(D) 339 m/s

Question 17.

The fundamental frequency in an open organ pipe is equal to the third harmonic of a closed organ pipe. If the length of the closed organ pipe is 20 cm, the length of the open organ pipe is

[4 Marks]

(A) 12.5 cm

(B) 16 cm

(C) 13.2 cm

(D) 8 cm

Question 18.

An electron falls from rest through a vertical distance h in a uniform and vertically upward directed electric field E. 'The direction of electric field is now reversed, keeping its magnitude the same. A proton is allowed to fall from rest in it through the same vertical distance h. The time of fall of the electron, in comparison to the time of fall of the proton is

[4 Marks]

(A) 10 times greater

(B) smaller

(C) 5 times greater

(D) equal

Question 19.

A toy car with charge q moves on a frictionless horizontal plane surface under the influence of a uniform electric field $?^{\rightarrow}$. Due to the force q $?^{\rightarrow}$, its velocity increases from 0 to 6 m/s in one second duration. At that instant the direction of the field is reversed. The car continues to move for two more seconds under the influence of this field. The average velocity and the average speed of the toy car between 0 to 3 seconds are respectively

[4 Marks]

(A) 1.5m/s,3m/s

(B) 1m/s,3.5m/s

(C) 2m/ss,4m/s

(D) 1m/s,3m/s

Question 20.

The electrostatic force between the metal plates of an isolated parallel plate capacitor C having a charge Q and area A, is

[4 Marks]

(A) linearly proportional to the distance between plates

(B) independent of the distance between the plates

(C) inversely proportional to the distance between plates

(D) proportional to the square root of the dist between the plates

Question 21.

A carbon resistor of (47 ±4.7) kΩ is to be marked With rings of different colours for its identification. The colour code sequence will be

[4 Marks]

(A) Yellow—Green —Violet—Gold

(B) Green—Orange—Violet—Gold

(C) Violet—Yellow— Orange— Silver

(D) Yellow— Violet—Orange — Silver

Question 22.

A set of 'n' equal resistors, of value 'R' each, are connect in series to a battery of emf 'E' and internal resistance 'R' The current drawn is I. Now, the 'n' resistors are connected in parallel to the same battery. Then the current d from battery becomes 10 1. The value of 'n' is

[4 Marks]

(A) 20

(B) 11

(C) 9

(D) 10

Question 23.

A metallic rod of mass per unit length 0.5 kg m^{-1} is horizontally on a smooth inclined plane which makes an angle of 30° with the horizontal. The rod is not allowed to ide down by flowing a current through it when a magnetic field of induction 0.25 T is acting on it in the vertical direction. The current flowing in the rod to keep it stationary is

[4 Marks]

(A) 7.14A

(B) 14.76A

(C) 5.98A

(D) 11.32 A

Question 24.

Current sensitivity of a moving coil galvanometer is 5 div/ mA and its voltage sensitivity (angular deflection per unit voltage applied) is 20 div/V. The resistance of the galvanometer is

[4 Marks]

(A) 250Ω

(B) 500Ω

(C) 40Ω

(D) 25Ω

Question 25.

A thin diamagnetic rod is placed vertically between the poles of an electromagnet. When the current in the electromagnet is switched on, then the diamagnetic rod is pushed up, out of the horizontal magnetic field. Hence the rod gains gravitational potential energy. The work required to do this comes from

[4 Marks]

(A) the lattice structure of the 'material of the rod

(B) the induced electric field due to the changing magnetic field

(C) the current source

(D) the magnetic field

Question 26.

The magnetic potential energy stored in a certain inductor is 25 mJ, when the current in the inductor is 60 mA. This inductor is of inductance

[4 Marks]

(A) 0.138H

(B) 138.88H

(C) 1.389H

(D) 13.89 H

Question 27.

An inductor 20 mH, a capacitor 100 μFanda resistor 50Ω are connected in series across a source of emf, V.= 10 sin 314 t. The power loss in the circuit is

[4 Marks]

(A) 2.74 W

(B) 1.13W

(C) 0.43W

(D) 0.79W

Question 28.

An em wave is propagating in a medium with a velocity $\vec{?}$= ?î . The instantaneous oscillating electric field of this em wave is along +y axis. Then the direction of oscillating 'magnetic field of the em wave will be along

[4 Marks]

(A) —x direction

(B) -y direction

(C) +z direction

(D) -z direction

Question 29.

The refractive index of the material of a prism is $\sqrt{2}$ and the angle of the prism is 30°.One of the two refracting surfaces of the prism is made a mirror inwards, by silver coating. A beam of monochromatic light entering the prism from the other face will retrace its path (after reflection from the silvered surface) if its angle of incidence on the prism is

[4 Marks]

(A) Zero

(B) 60°

(C) 45°

(D) 30°

Question 30.

An astronomical refracting telescope will have large angular magnification and high angular resolution, when it has an objective lens of

[4 Marks]

(A) small focal length and small diameter

(B) large focal length and large diameter

(C) large focal length and small diameter

(D) small focal length and large diameter

Question 31.

In Young's double slit experiment the separation d between the slits is 2 mm, the wavelength λ of the light used is 5896 Å and distance D between the screen and slits is 100 cm. It is found that the angular width of the fringes is 0.20°. To increase the fringe angular width to 0.21° (with same λ and D) the separation between the slits needs to be changed to

[4 Marks]

(A) 2.1mm

(B) 1.7mm

(C) 1.9mm

(D) 1.8mm

Question 32.

Unpolarised light is incident from air on a plane surface of a material of refractive index 'μ'. At a particular angle of incidence 'i', it is found that the reflected and refracted rays are perpendicular to each other. Which of the: following options is correct for this situation?

[4 Marks]

(A) Reflected light is polarised with its electric vector parallel to the plane of incidence

(B) Reflected light is polarised with its electric vector perpendicular to the plane of incidence

(C) $i = \tan^{-1}(1/\mu)$

(D) $i = \sin^{-1}(1/\mu)$

Question 33.

An electron of mass m_0 with an initial velocity $\vec{?} = v_0 \hat{i}$ ($v_0 > 0$) enters an electric field $\vec{?} = -E_0 \hat{i}$ (E_0 = constant > 0) at t = 0. If λ_0 is its de-Broglie wavelength at t = 0, then its de-Broglie wavelength after time t is

[4 Marks]

(A) λ_0

(B) $\lambda_0(1+ eE_0/,v_0 t)$

(C) $\lambda_0/(1+eE_0/mV_0 t)$

(D) $\lambda_0 t$

Question 34.

The ratio of kinetic energy to the total energy of an electron in a Bohr orbit of the hydrogen atom, is

[4 Marks]

(A) 2:-1

(B) 1:-2

(C) 1:-1

(D) 1:1

Question 35.

For a radioactive material, half-life is 10 minutes. If initially there are 600 number of nuclei, the time taken (in minutes) for the disintegration of 450 nuclei is

[4 Marks]

(A) 30

(B) 15

(C) 10

(D) 20

Question 36. In ap-n junction diode, change in temperature due to heating

[4 Marks]

(A) Affects only reverse resistance

(B) Affects only forward resistance

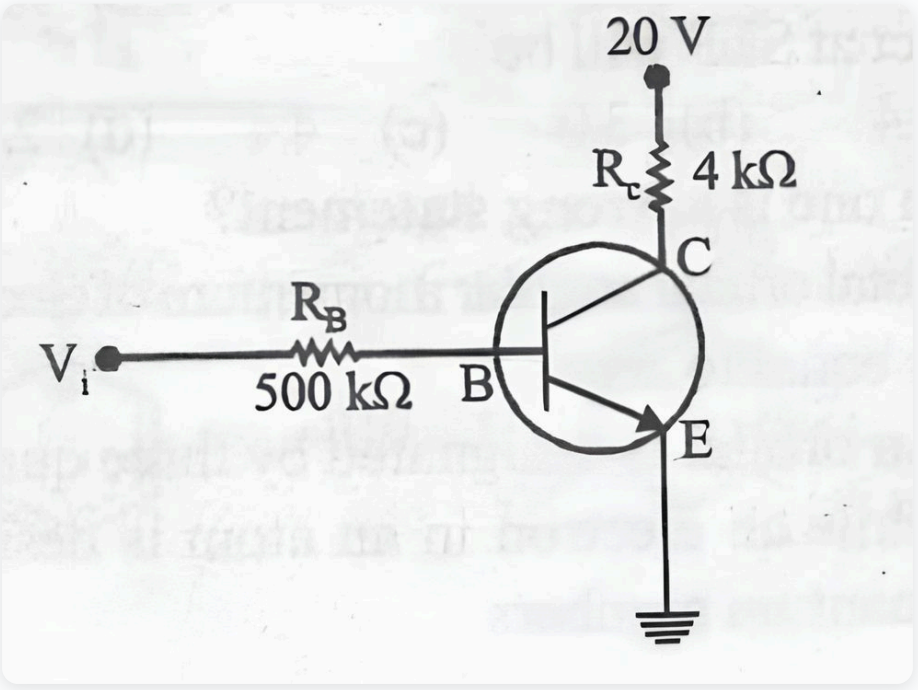
(C) Affects the overall V-I characteristics of p-n junction

(D) Does not affect resistance of p-n junction

Question 37.

In the circuit shown in the figure, the input voltage V_i is 20 V, V_BE = 0 and V_CE) = 0. The values of I_β, I? and β are given by

[4 Marks]



(A) I_β = 40 μA, I? = 10 mA, β = 250

(B) I_β = 40 μA, I? = 5 mA, β = 125

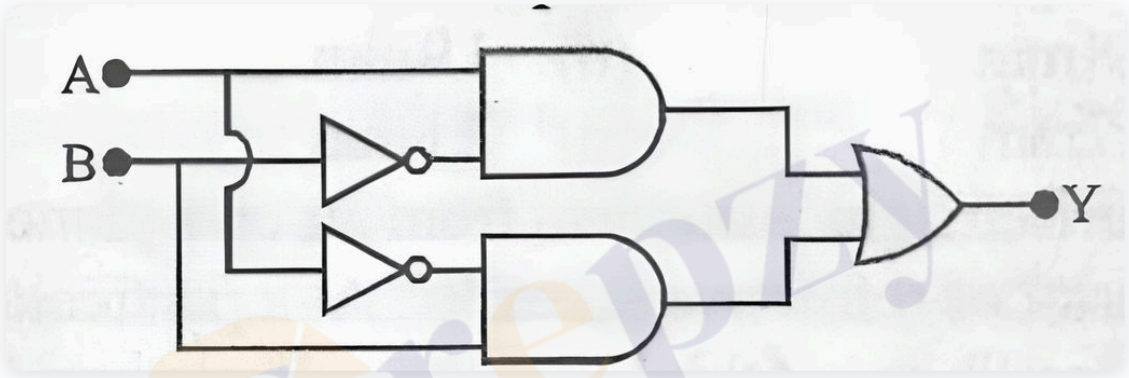
(C) I_β = 25 μA, I? = 5 mA, β = 200

(D) I_β = 20 μA, I? = 5 mA, β = 250

Question 38.

In the combination of the following gates the output Y can be written in terms of inputs A and B as

[4 Marks]



(A) $A\bar{+}B^{-}$

(B) $A.\bar{B}^{-}+A.B$

(C) $A.\bar{B}^{-}$

(D) $A.B^{-}+A.\bar{B}$

Question 39.

A battery consists of a variable number 'n' of identical cells (having internal resistance 'r' each) which are connected in series. The terminals of the battery are short-circuited and the current I is measured. Which of the graphs shows the correct relationship between I and n?

[4 Marks]

(A)



(B)



(C)



(D)



Question 40.

An object is placed at a distance of 40 cm from a concave mirror of focal length 15 cm. If the object is displaced through a distance of 20 cm towards the mirror, the displacement of the image will be

[4 Marks]

(A) 36 cm towards the mirror

(B) 30 cm towards the mirror

(C) 36 cm away from the mirror

(D) 30 cm away from the mirror

Question 41.

'When the light of frequency $2v_0$ (where v_0 is threshold frequency), is incident on a metal plate, the maximum velocity of electrons emitted is v_1. When the frequency of the incident radiation is increased to $5v_0$, the maximum velocity of electrons emitted from the same plate is v_2. The ratio of v_1 to v_2 is'

[4 Marks]

(A) 1:2

(B) 1:4

(C) 4:1

(D) 2:1

Question 42.

If the mass of the Sun were ten times smaller and th universal gravitational constant were ten times larger magnitude, which of the following is not correct?

[4 Marks]

(A) Walking on the ground would become more difficult

(B) Raindrops will fall faster

(C) Time period of asimple pendulum on the Earth would decrease

(D) 'g' on the Earth will not change

Question 43.

A sample of 0.1 g of water at 100°C and normal pressure ($1.013 \times 10^5 Nm^{-2}$) requires 54 cal of heat energy to convert to steam at 100°C. If the volume of the steam produced is 167 . 1 cc, the change in internal energy of the sample , is

[4 Marks]

(A) 42.2J

(B) 84.5J

(C) 208.7J

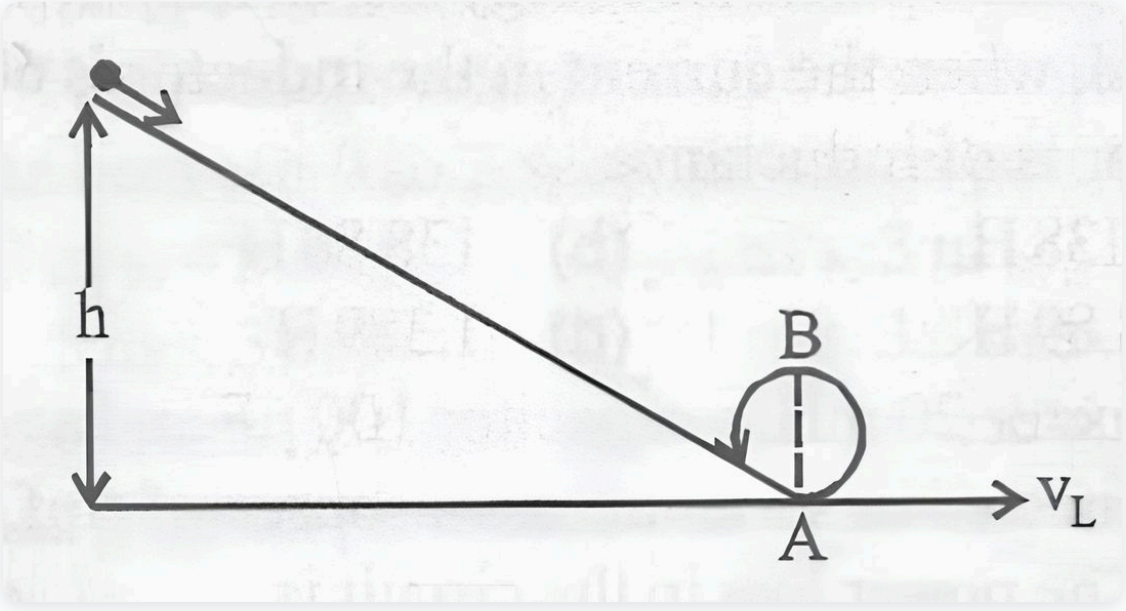
(D) 104.3J

Question 44.

A body initially at rest and sliding along a frictionless track from a height h (as shown in the figure) just complete a vertical circle of diameter AB=D. The height h is equal

to

[4 Marks]



(A) 5/4(D)

(B) 3/2(D)

(C) D

(D) 7/5(D)

Question 45.

In which case is number of molecules of water maximum?

[4 Marks]

(A) 0.18 g of water

(B) 0.00224 L of water vapours at 1 atm and 273 K

(C) 10^{-3} mol of water

(D) 18 mL of water

Question 46.

A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc. H_2SO_4. The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be

[4 Marks]

(A) 2.8

(B) 3.0

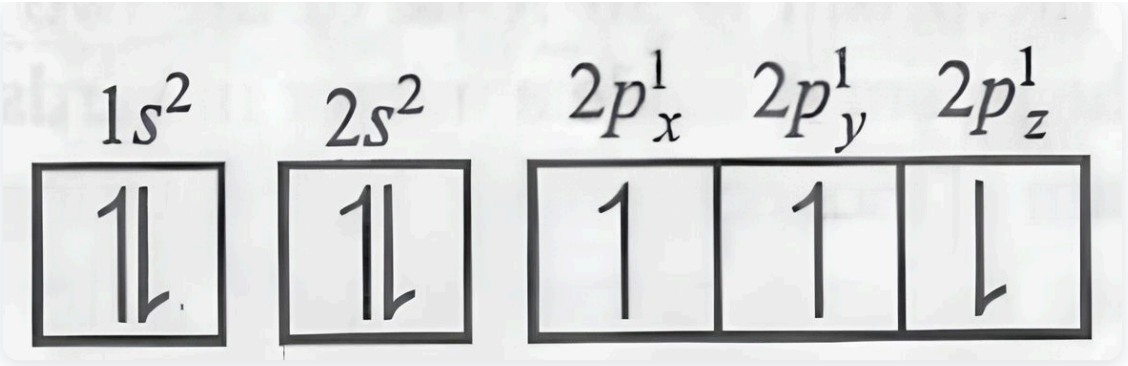
(C) 4.4

(D) 1.4

Question 47.

Which one is a wrong statement?

[4 Marks]



(A) Total orbital angular momentumn of electron in s' orbital is equal to zero

(B) An orbital is designated by three quantum numbers while an electron in an atom is designated by four quantum numbers

(C) The value of m for d^2z is zero

(D) The electronic configuration of N atom is

Question 48.

The correct order of atomic radii in group 13 elements is

[4 Marks]

(A) B

(B) B

(C) B

(D) B

Question 49.

In the structure of ClF_3, the number of lone pair of electron on central atom 'Cl' is

[4 Marks]

(A) Three

(B) Two

(C) One

(D) Four

Question 50.

Which of the following molecules represents the order of hybridisation sp^2, sp^2, sp, sp from left to right atoms?

[4 Marks]

(A) $CH_2 = CH - C \equiv CH$

(B) $HC \equiv C- C \equiv CH$

(C) $CH_2 = CH - CH = CH_2$

(D) $CH_3 - CH = CH - CH_3$

Question 51.

Consider the following species

CN^+, CN^-, NO and CN

'Which one of these will have the highest bond order?

[4 Marks]

(A) CN

(B) CN^+

(C) CN^-

(D) NO

Question 52.

The correction factor 'a' to the ideal gas equation corresponds to

[4 Marks]

(A) Density of the gas molecules

(B) Volume of the gas molecules

(C) Blectric field present between the gas molecules

(D) Forces of atiraction between the gas molecules

Question 53.

Given van der Waals constants for NH_3, H_2, O_2 and CO_2 are respectively 4.17, 0.244, 1.36 and 3.59, which one of the following gases is most easily liquefied?

[4 Marks]

(A) O_2

(B) CO_2

(C) H_2

(D) NH_3

Question 54.

The bond dissociation energies of X_2, Y_2 and XY are in the ratio of 1 : 0.5 : 1. ΔH for the formation of XY is -200 kJ mol^{-1}. The bond dissociation energy of X_2 will be :

[4 Marks]

(A) 400kJmol^{-1}

(B) 800kJmol^{-1}

(C) 100kJmol^{-1}

(D) 200kJmol^{-1}

Question 55.

'Which one of the following conditions will favour maximum formation of the product in the reaction,

$A_2(g) + B_2(g) \rightleftharpoons X_2(g) \quad \Delta_r H = -X$ kJ;

[4 Marks]

(A) Low temperature and low pressure

(B) Low temperature and high pressure

(C) High temperature and high pressure

(D) High temperature and low pressure

Question 56.

Following solutions were prepared by mixing different volumes of NaOH and HCl of different concentrations :

a- 60 mL M/10 HCl + 40 mL M/10 NaOH

b-55 mL M/10 HCl + 45 mL M/10 NaOH

c-75 mL M/5 HCl + 25 mL M/5 NaOH

d- 100 mL M/10 HCl + 100 mL M/10 NaOH

pH of which one of them will be equal to 1?

[4 Marks]

(A) b

(B) a

(C) c

(D) d

Question 57.

The solubility of $BaSO_4$ in water is 2.42×10^{-3} gL^{-1} at 298 K. The value of its solubility product (K_{sp}) will be

(Given molar mass of $BaSO_4$ = 233 g mol^{-1})

[4 Marks]

(A) 1.08×10^{-14} mol^2L^{-2}

(B) 1.08×10^{-8} mol^2L^{-2}

(C) 1.08×10^{-10} mol^2L^{-2}

(D) 1.08×10^{-12} mol^2L^{-2}

Question 58.

For the redox reaction

$MnO_4^- + C_2O_4^{2-} + H^+ \rightarrow Mn^{2+} + CO_2 + H_2O$

The correct coefficients of the reactants for the balanced equation are

[4 Marks]

	MnO_4^-	$C_2O_4^{2-}$	H^+
(a)	16	5	2
(b)	2	5	16
(c)	5	16	2
(d)	2	16	5

(A) A

(B) B

(C) C

(D) D

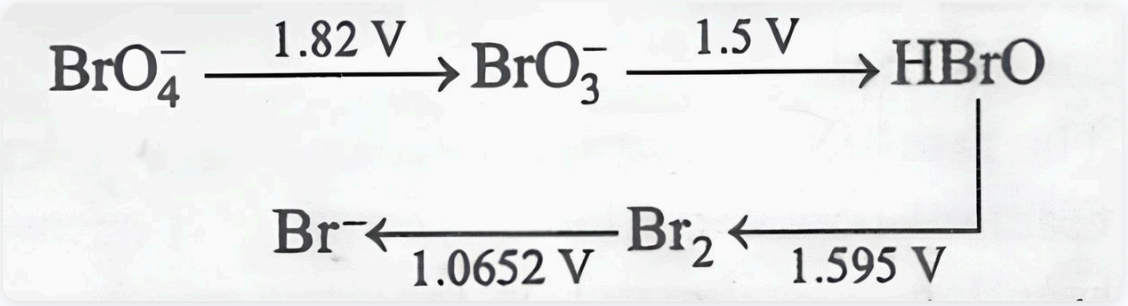
Question 59.

Consider the change in oxidation state of bromine corresponding to different emf values as shown in the

diagram below :

Then the species undergoing disproportion-ation is

[4 Marks]



(A) Br_2

(B) HBrO

(C) BrO_3^-

(D) BrO_4^-

Question 60.

Which of the following oxides is most acidic in nature?

[4 Marks]

(A) CaO

(B) BaO

(C) BeO

(D) MgO

Question 61.

Among CaH_2, BeH_2, BaH_2, the order of 'ionic character is

[4 Marks]

(A) $BeH_2 < BaH_2 < CaH_2$

(B) $BaH_2 < BeH_2 < CaH_2$

(C) $BeH_2 < CaH_2 < BaH_2$

(D) $CaH_2 < BeH_2 < BaH_2$

Question 62.

'Which one of the following elements is unable to form

$MF^3{}_6{}^-$ ion?

[4 Marks]

(A) Al

(B) B

(C) In

(D) Ga

Question 63.

'Which of the following is correct with respect to — I effect

of the substituents? (R = alkyl)

[4 Marks]

(A) $-NR_2 < -OR < -F$

(B) $-NH_2 < -OR < -F$

(C) $-NR_2 > -OR > -F$

(D) $-NH_2 > -OR > -F$

Question 64.

Hydrocarbon (A) reacts with bromine by substitution to form an alkyl bromide which by Wurtz reaction is converted to gaseous hydrocarbon containing less than four carbon

atoms. (A) is

[4 Marks]

(A) CH_3-CH_3

(B) CH_4

(C) $CH_2=CH_2$

(D) $CH\equiv CH$

Question 65.

Which oxide of nitrogen is not a common pollutant introduced into the atmosphere both due to natural and

'human activity?

[4 Marks]

(A) NO

(B) NO_2

(C) N_2O_5

(D) N_2O

Question 66.

Iron exhibits bcc structure at room temperature. Above 900°C, it transforms to fcc structure. The ratio of density of iron at room temperature to that at 900°C (assuming molar mass and atomic radii of iron remains constant with temperature) is

[4 Marks]

(A) $3\sqrt{3}/4\sqrt{2}$

(B) 1/2

(C) $\sqrt{3}/\sqrt{2}$

(D) $4\sqrt{3}/3\sqrt{2}$

Question 67.

The correct difference between first and second order reactions is that

[4 Marks]

(A) A first-order reaction can be catalyzed, a second order reaction cannot be catalyzed

(B) The rate of a first-order reaction does depend on reactant concentrations, the rate of asecond-order reaction does not depend on reactant concentrations

(C) The half-life of a first-order reaction does not depend on $[A]_0$, the half-life of a second-order reaction does depend on $[A]_0$,

(D) Therate of a first-order reaction does not depend on reactant concentrations, the rate of a second-order reaction does depend on reactant concentrations

Question 68.

'When initial concentration of the reactant is doubled, the half-life period of a zero order reaction

[4 Marks]

(A) is tripled

(B) remains unchanged

(C) is halved

(D) is doubled

Question 69.

On which of the following properties does the coagulating power of an ion depend?

[4 Marks]

(A) The sign of charge on the ion alone

(B) Both magnitude and sign of the charge on the ion

(C) Size of the ion alone

(D) The magnitude of the charge on the ion alone

Question 70.

Considering Ellingham diagram, which of the following metals can be used to reduce alumina?

[4 Marks]

(A) Cu

(B) Mg

(C) Fe

(D) Zn

Question 71.

The correct order of N-compounds in its decreasing order of oxidation states is

[4 Marks]

(A) HNO_3, NO, NH_4Cl, N_2

(B) NH_4Cl, N_2, NO, HNO_3

(C) HNO_3, NH_4Cl, NO, N_2

(D) HNO_3, NO, N_2, NH_4Cl

Question 72.

'Which one of the following ions exhibits d-d transition and paramagnetism as well?

[4 Marks]

(A) MnO_4^{2-}

(B) MnO_4^-

(C) CrO_4^{2-}

(D) $Cr_2O_7^2$

Question 73.

The type of isomerism shown by the complex $[CoCl_2(en)_2]$ is

[4 Marks]

(A) Ionization isomerism

(B) Linkage isomerism

(C) Geometrical isomerism

(D) Coordination isomerism

Question 74.

The geometry and magnetic behaviour of the complex $[Ni(CO)_4]$ are

[4 Marks]

(A) Tetrahedral geometry and paramagnetic

(B) Square planar geometry and paramagnetic

(C) Tetrahedral geometry and diamagnetic

(D) Square planar geometry and diamagnetic

Question 75.

Match the metal ions given in Column I with the spin magnetic moments of the ions given in Column II and assign the correct code :

[4 Marks]

	Column I		Column II
a.	Co^{3+}	i.	$\sqrt{8}$ BM
b.	Cr^{3+}	ii.	$\sqrt{35}$ BM
c.	Fe^{3+}	iii.	$\sqrt{3}$ BM
d.	Ni^{2+}	iv.	$\sqrt{24}$ BM
		v.	$\sqrt{15}$ BM

	a	b	c	d
(a)	iv	v	ii	i
(b)	i	ii	iii	iv
(c)	iii	v	i	ii
(d)	iv	i	ii	iii

(A) A

(B) B

(C) C

(D) D

Question 76.

Iron carbonyl, $[Fe(CO)_5]$ is

[4 Marks]

(A) Dinuclear

(B) Trinuclear

(C) Mononuclear

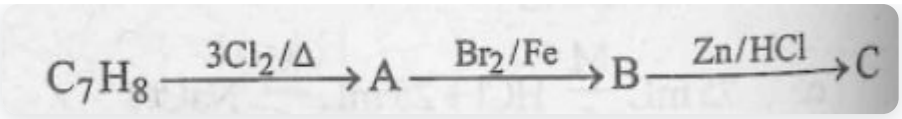
(D) Tetranuclear

Question 77.

The compound C_7H_8 undergoes the following reactions:

The product 'C' is

[4 Marks]



(A) 3-bromo-2,4,6-trichlorotoluene

(B) p-bromotoluene

(C) m-bromotoluene

(D) o-bromotoluene

Question 78.

The compound A on treatment with Na gives B, and with PCl_5 gives C. B and C react together to give diethyl ether. A, B and C are in the order

[4 Marks]

(A) C_2H_5OH, C_2H_5Cl, C_2H_5ONa

(B) C_2H_5OH, C_2H_5, C_2H_5Cl

(C) C_2H_5OH, C_2H_5ONa, C_2H_5Cl

(D) C_2H_5Cl, C_2H_5, C_2H_5OH

Question 79.

Carboxylic acids have higher boiling points than aldehydes, ketones and even alcohols of comparable molecular mass. It is due to their

[4 Marks]

(A) Formation of intermolecular H-bonding

(B) Formation of intramolecular H-bonding

(C) Formation of carboxylate ion

(D) More extensive association of 'carboxylic acid via van der Waals force of attraction

Question 80.

Nitration of aniline in strong acidic medium also gives mnitroaniline because

[4 Marks]

(A) Inspite of substituents nitro group always goes to only m-position.

(B) In electrophilic substitution reactions, amino group is meta directive.

(C) In acidic (strong) medium aniline is present as anilinium ion.

(D) In absence of substituents, nitro group always goes to m-position.

Question 81.

'Which of the following compounds can form a zwitterion?

[4 Marks]

(A) Aniline

(B) Benzoic acid

(C) Acetanilide

(D) Glycine

Question 82.

Regarding cross-linked or network polymers, which of the following statements is incorrect?

[4 Marks]

(A) Examples are bake lite and melamine.

(B) Theyare formed from bi- and tri-fiunctional monomers.

(C) Theycontain strong covalents bonds in their polymer chains.

(D) They contain covalent bonds between various linear polymer chains.

Question 83.

The difference between amylose and amylopectin is

[4 Marks]

(A) Amylopectin has 1 → 4 α-linkage and 1 → 6 β-linkage

(B) Amylose is made up of glucose and galactose

(C) Amylose has 1 → 4 α-linkage and 1 → 6 β-linkage

(D) Amylopectin has 1 -----> 4∝ -linkage and 1 ----. 6 α- linkage

Question 84.

Which of the following oxides is most acidic in nature?

[4 Marks]

(A) MgO

(B) BeO

(C) CaO

(D) BaO

Question 85.

Which of the following has proved helpful in preserving pollen as fossils?

[4 Marks]

(A) Oil content

(B) Pollenkitt

(C) Cellulosic intine

(D) Sporopollenin

Question 86.

Which among the following is not a prokaryote?

[4 Marks]

(A) Saccharomyces

(B) Mycobacterium

(C) Oscillatoria

(D) Nostoc

Question 87.

which of the following organisms are know as chief producers in the oceans?

[4 Marks]

(A) Dinoflagellates

(B) Euglenoids

(C) Cyanobacteria

(D) Diatoms

Question 88.

Ciliates differ from all other protozoans in

[4 Marks]

(A) using pseudopodia for capturing prey

(B) having two types of nuclei

(C) using flagella for locomotion

(D) having a contractile vacuole for removing excess water

Question 89.

Which one is wrongly matched?

[4 Marks]

(A) Uniflagellate gametes — Polysiphonia

(B) Unicellular organism — Chlorella

(C) Gemma cups — Marchantia

(D) Biflagellate zoospores — Brown algae

Question 90.

After karyogamy followed by meiosis, spores are produced exogenously in

[4 Marks]

(A) Neurospora

(B) Agaricus

(C) Alternaria

(D) Saccharomyces

Question 91.

Select the wrong statement :

[4 Marks]

(A) Mitochondria are the powerhouse of the cell in all kingdoms except Monera

(B) Cell wall is present in members of Fungi and Plantae

(C) Mushrooms belong to Basidiomycetes

(D) Pseudopodia are locomotory and feeding structures in Sporozoans

Question 92.

Which of the following animals does not undergo metamorphosis?

[4 Marks]

(A) Earthworm

(B) Tunicate

(C) Starfish

(D) Moth

Question 93.

Pneumatophores occur in

[4 Marks]

(A) Carnivorous plants

(B) Free-floating hydrophytes

(C) Halophytes

(D) Submerged hydrophytes

Question 94.

Winged pollen grains are present in

[4 Marks]

(A) Mango

(B) Pinus

(C) Cycas

(D) Mustard

Question 95.

Casparian strips occur in

[4 Marks]

(A) Endodermis

(B) Cortex

(C) Pericycle

(D) Epidermis

Question 96.

Secondary xylem and phloem in dicot stem are produced by

[4 Marks]

(A) Vascular cambium

(B) Phellogen

(C) Axillary meristems

(D) Apical meristems

Question 97.

Plants having little or no secondary growth are

[4 Marks]

(A) Cycads

(B) Conifers

(C) Grasses

(D) Deciduous angiosperms

Question 98.

The two functional groups characteristic of sugars are

[4 Marks]

(A) Carbonyl and methyl

(B) Carbonyl and phosphate

(C) Carbonyl and 'hydroxyl

(D) Hydroxyl and methyl

Question 99.

The stage during which separation of the paired homologous chromosomes begins is

[4 Marks]

(A) Zygotene

(B) Diakinesis

(C) Diplotene

(D) Pachytene

Question 100.

Stomatal movement is not affected by

[4 Marks]

(A) Light

(B) CO_2 concentration

(C) Temperature

(D) O_2 concentration

Question 101.

Stomata in grass leaf are

[4 Marks]

(A) Dumb-bell shaped

(B) Kidney shaped

(C) Barrel shaped

(D) Rectangular

Question 102.

In which of the following forms is iron absorbed by plant?

[4 Marks]

(A) Ferric

(B) Ferrous

(C) Free iron

(D) Both ferric and ferrous

Question 103.

Which of the following elements is responsible for maintaining turgor in cells?

[4 Marks]

(A) Potassium

(B) Sodium

(C) Calcium

(D) Magnesium

Question 104.

Oxygen is not produced by photosynthesis by

[4 Marks]

(A) Cycas

(B) Chara

(C) Nostoc

(D) Green sulphur bacteria

Question 105.

Which of the following is not a product of light reaction of photosynthesis?

[4 Marks]

(A) NADH

(B) NADPH

(C) Oxygen

(D) ATP

Question 106.

What is the role of NAD^+ in cellular respiration?

[4 Marks]

(A) It functions as an electron carrier.

(B) It functions as an enzyme.

(C) It is the final electron acceptor for anaerobic respiration.

(D) It is a nucleotide source for ATP synthesis.

Question 107.

Which of the following terms describe human dentition?

[4 Marks]

(A) Pleurodont, Monophyodont, Homodont

(B) Pleurodont, Diphyodont, Heterodont

(C) Thecodont, Diphyodont, Heterodont

(D) Thecodont, Diphyodont, Homodont

Question 108.

Match the items given in Column I with those in Column II and select the correct option given below:

[4 Marks]

select the correct option

	Column I		Column II
A.	Tidal volume	i.	2500 – 3000 mL
B.	Inspiratory Reserve volume	ii.	1100 – 1200 mL
C.	Expiratory Reserve volume	iii.	500 – 550 mL
D.	Residual volume	iv.	1000 – 1100 mL

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

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

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

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

Question 109.

Which part of poppy plant is-used to obtain the drug "Smack"?

[4 Marks]

(A) Leaves

(B) Latex

(C) Roots

(D) Flowers

Question 110.

Which of the following is an occupational respiratory disorder?

[4 Marks]

(A) Emphysema

(B) Botulism

(C) Silicosis

(D) Anthracis

Question 111.

Match the items given in Column I with those in Column T and

select the correct option given below:

[4 Marks]

	Column I		Column II
A.	Fibrinogen	(i)	Osmotic balance
B.	Globulin	(ii)	Blood clotting
C.	Albumin	(iii)	Defence mechanism

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

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

(C) Aiii- B-ii C-i

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

Question 112.

Match the items given in Column I with those in Column II and

select the correct option given below:

[4 Marks]

	Column I		Column II
A.	Tricuspid valve	i.	Between left atrium and left ventricle
B.	Bicuspid valve	ii.	Between right ventricle and pulmonary artery
C.	Semilunar valve	iii.	Between right atrium and right ventricle

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

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

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

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

Question 113.

Match the items given in Column I with those in Column I and

select the correct option given below:

[4 Marks]

	Column I		Column II
A.	Glycosuria	i.	Accumulation of uric acid in joints
B.	Gout	ii.	Mass of crystallised salts within the kidney
C.	Renal calculi	iii.	Inflammation in glomeruli
D.	Glomerular	iv.	Presence of in nephritis glucose urine

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

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

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

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

Question 114.

Calcium is important in skeletal muscle contraction because it

[4 Marks]

(A) Prevents the formation of bonds between the myosin cross bridges and the actin filament.

(B) Detaches the myosin head from the actin filament.

(C) Activates the myosin ATPase by binding to it.

(D) Binds to troponin to remove the masking of active sites on actin for myosin.

Question 115.

'Which of the following is not an autoimmune disease ?

[4 Marks]

(A) Vitiligo

(B) Alzheimer's disease

(C) Psoriasis

(D) Rheumatoid arthritis

Question 116.

Which of the following hormones can play a significant role in osteoporosis?

[4 Marks]

(A) Parathyroid hormone and Prolactin

(B) Estrogen and Parathyroid hormone

(C) Progesterone and Aldosterone

(D) Aldosterone and Prolactin

Question 117.

Which of the following structures or regions is incorrectly paired with its functions?

[4 Marks]

(A) Corpus callosum : band of fibers connecting left and right cerebral hemispheres

(B) Limbic system : consists of fibre tracts that interconnect different regions of brain; controls movement.

(C) Medulla oblongata : controls respiration and cardiovascular reflexes

(D) Hypothalamus : production of releasing hormones and regulation of temperature, hunger and thirst.

Question 118.

Nissl bodies are mainly composed of

[4 Marks]

(A) Nucleic acids and SER

(B) Free ribosomes and RER

(C) Proteins and lipids

(D) DNA and RNA

Question 119.

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

[4 Marks]

(A) smooth muscles attached to the iris

(B) smooth muscles attached to the ciliary body

(C) ligaments attached to the ciliary body

(D) ligaments attached to the iris

Question 120.

Which of the following is an amino acid derived hormone?

[4 Marks]

(A) Estradiol

(B) Estriol

(C) Ecdysone

(D) Epinephrine

Question 121.

Offsets are produced by

[4 Marks]

(A) Parthenocarpy

(B) Parthenogenesis

(C) Mitotic divisions

(D) Meiotic divisions

Question 122.

Which of the following flowers blooms only once in its life-time?

[4 Marks]

(A) Mango

(B) Papaya

(C) Jackfruit

(D) Bamboo species

Question 123.

Pollen grains can be stored for several years in liquid nitrogen having a temperature of

[4 Marks]

(A) -196°C

(B) -160°C

(C) -80°C

(D) -120°C

Question 124.

Double fertilization is

[4 Marks]

(A) Fusion of two male gametes with one egg

(B) Syngamy and triple fusion

(C) Fusion of one male gamete with two polar nuclei

(D) usion of two male gametes of a pollen tube with two different eggs

Question 125.

The difference between spermiogenesis and spermiation is

[4 Marks]

(A) In spermiogenesis spermatozoa are formed, while in spermiation spermatozoa are released from Sertoli cells into the cavity of seminiferous tubules.

(B) In spermiogenesis spermatozoa from Sertoli cells are released into the cavity of seminiferous tubules, while in spermiation spermatozoa are formed.

(C) In spermiogenesis spermatids are formed, while in spermiation spermatozoa are formed.

(D) In spermiogenesis spermatids are formed, while in spermiation spermatozoa are formed.

Question 126.

Match the items given in Column I with those in Column II and

select the correct option given below:

[4 Marks]

	Column I		Column II
A.	Proliferative Phase	i.	Breakdown of endometrial lining
B.	Secretory Phase	ii.	Follicular Phase
C.	Menstruation	iii.	Luteal Phase

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

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

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

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

Question 127.

The amnion of mammalian embryo is derived from

[4 Marks]

(A) mesoderm and trophoblast

(B) ectoderm and mesoderm

(C) ectoderm and endoderm

(D) endoderm and mesoderm

Question 128.

Hormones secreted by the placenta to maintain pregnancy are

[4 Marks]

(A) hCG progestogens, estrogens, glucocorticoids

(B) hCG, hPL, progestogens, estrogens

(C) hCG, hPL, progestogens, prolactin

(D) hCG, hPL, estrogens, relaxin, oxytocin

Question 129.

The contraceptive 'SAHELI'

[4 Marks]

(A) is an IUD.

(B) is a post-coital contraceptive.

(C) increases the concentration of estrogen and prevents ovulation in females.

(D) blocks estrogen receptors in the uterus, preventing egg from getting implanted.

Question 130.

A woman has an X-linked condition on one of her X chromosomes. This chromosome can be inherited by

[4 Marks]

(A) Both sons and daughters

(B) Only grandchildren

(C) Only daughters

(D) Only sons

Question 131.

AGGTATGCCAT is a sequence from the coding strand of a gene. What will be the corresponding sequence of the transcribed mRNA?

[4 Marks]

(A) UCCAUAGCGUA

(B) ACUAUGGGAU

(C) UGGUTTCGCAT

(D) AGGUAUCGCAU

Question 132.

Select the correct match

[4 Marks]

(A) Matthew Meselson – Pisum sativum and D.F. Stahl

(B) Francois Jacob and Jacques Monod – Lac operon

(C) Alfred Hershey and Martha Chase – TMV

(D) Alec Jeffreys – Streptococcus pneumoniae

Question 133.

The experimental proof for semiconservative replication of DNA was first shown in a

[4 Marks]

(A) Fungus

(B) virus

(C) Bacterium

(D) plant

Question 134.

All of the following are part of an operon except

[4 Marks]

(A) an operator

(B) a promoter

(C) structural genes

(D) an enhancer

Question 135.

According to Hugo de Vries, the mechanism of evolution is

[4 Marks]

(A) Multiple step mutations

(B) Saltation

(C) Minor mutations

(D) Phenotypic variations

Question 136.

Which of the following is commonly used as a vector for introducing a DNA fragment in human lymphocytes?

[4 Marks]

(A) pBR 322

(B) λ phage

(C) Ti plasmid

(D) Retrovirus

Question 137.

The correct order of steps in Polymerase Chain Reaction (PCR) is

[4 Marks]

(A) Denaturation, Extension, Annealing

(B) Denaturation, Annealing, Extension

(C) Annealing, Extension, Denaturation

(D) Extension, Denaturation, Annealing

Question 138.

Use of bioresources by multinational companies and organisations without authorisation from the concerned country and its people is called

[4 Marks]

(A) Biodegradation

(B) Bio-infringement

(C) Bioexploitation

(D) Biopiracy

Question 139.

In India, the organisation responsible for assessing the safety of introducing genetically modified organisms for public use is

[4 Marks]

(A) Genetic Engineering Appraisal Committee (GEAC)

(B)) Research Committee on Genetic Manipulation (RCGM)

(C) Indian Council of Medical Research (ICMR)

(D) Council for Scientific and Industrial Research (CSIR)

Question 140.

A 'new' variety of rice was patented by a foreign company, though such varieties have been present in India for a long time. This is related to

[4 Marks]

(A) Lerma Rojo

(B) Basmati

(C) Co-667

(D) Sharbati Sonora

Question 141.

Which one of these animals is not a homeotherm?

[4 Marks]

(A) Camelus

(B) Psittacula

(C) Chelone

(D) Macropus

Question 142.

Match Column-1 with Column-II

[4 Marks]

Column-I	Column-II
(A) Saprophyte	(i) Symbiotic association of fungi with plant roots
(B) Parasite	(ii) Decomposition of dead organic materials
(C) Lichens	(iii) Living on living plants or animals
(D) Mycorrhiza	(iv) Symbiotic association of algae and fungi

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

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

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

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

Question 143.

In a growing population of a country,

[4 Marks]

(A) reproductive individuals are less than the post-reproductive individuals.

(B) pre-reproductive individuals are less than the reproductive individuals

(C) pre-reproductive individuals are more than the reproductive individuals.

(D) reproductive and pre-reproductive individuals are equal in number.

Question 144.

Which one of the following population interactions is widely used in medical science for the production of antibiotics?

[4 Marks]

(A) Commensalism

(B) Amensalism

(C) Mutualism

(D) Parasitism

Question 145.

Which one of the following plants shows a very close relationship with a species of moth, where none of the two can complete its life cycle without the other?

[4 Marks]

(A) Banana

(B) Viola

(C) Hydrilla

(D) Yucca

Question 146.

World Ozone Day is celebrated on

[4 Marks]

(A) 16th September

(B) 22nd April

(C) 21st April

(D) 5th June

Question 147.

Niche is

[4 Marks]

(A) the functional role played by the organism where it lives.

(B) the range of temperature that the organism needs to live.

(C) all the biological factors in the organism's environment.

(D) physical space where an organism lives.

Question 148.

What type of ecological pyramid would be obtained with the following data?

Secondary consumer : 120 g

Primary consumer : 60 g

Primary producer : 10 g

[4 Marks]

(A) Upright pyramid of numbers

(B) Upright pyramid of biomass

(C) Pyramid of energy

(D) Inverted pyramid of biomass

Question 149.

All of the following are included in 'ex-situ conservation" except

[4 Marks]

(A) Botanical gardens

(B) Sacred groves

(C) Wildlife safari parks

(D) Seed banks

Question 150.

Which of the following is a secondary pollutant ?

[4 Marks]

(A) O_2

(B) SO_2

(C) CO

(D) CO_2

Question 151.

Match the items given in Column I with those in Column II and select the correct option given below:

[4 Marks]

Column-I	Column-II
A. Eutrophication	i. UV-B radiation
B. Sanitary landfill	ii. Deforestation
C. Snow blindness	iii. Nutrient enrichment
D. Jhum cultivation	iv. Waste disposal

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

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

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

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

Question 152.

In stratosphere, which of the following elements acts as a catalyst in degradation of ozone and release of molecular oxygen?

[4 Marks]

(A) Cl

(B) Fe

(C) Carbon

(D) Oxygen

Question 153.

Which of the following options correctly represents the lung conditions in asthma and emphysema, respectively?

[4 Marks]

(A) Decreased respiratory surface; Inflammation of bronchioles

(B) Increased number of bronchioles; Increased respiratory surface

(C) Increased respiratory surface; Inflammation of bronchioles

(D) Inflammation of bronchioles; Decreased respiratory surface

Question 154.

Select the incorrect match:

[4 Marks]

(A) Allosomes — Sex chromosomes

(B) Lampbrush chromosomes — Diplotene bivalents

(C) Polytene chromosomes — Oocytes of amphibians

(D) Submetacentric chromosomes — L-shaped chromosomes

Question 155.

Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as

[4 Marks]

(A) Plastidome

(B) Nucleosome

(C) Polysome

(D) Polyhedral bodies

Question 156.

Which of the following events does not occur in rough endoplasmic reticulum?

[4 Marks]

(A) Phospholipid synthesis

(B) Cleavage of signal peptide

(C) Protein glycosylation

(D) Protein folding

Question 157.

Identify the vertebrate group of animals characterized by crop and gizzard in its digestive system

[4 Marks]

(A) Osteichthyes

(B) Aves

(C) Reptilia

(D) Amphibia

Question 158.

Which of the following features is used to identify a male cockroach from a female cockroach?

[4 Marks]

(A) Presence of anal cerci

(B) Presence of caudal styles

(C) Presence of a boat shaped sternum on the 9th abdominal segment

(D) Forewings with darker tegmina

Question 159.

Match the items given in Column I with those in Column II and select the correct option given below:

[4 Marks]

	Column I (Function)		Column II (Part of Excretory system)
A.	Ultrafiltration	i.	Henle's loop
B.	Concentration of urine	ii.	Ureter
C.	Transport of urine	iii.	Urinary bladder
D.	Storage of urine	iv.	Malpighian corpuscle
		v.	Proximal convoluted tubule

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

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

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

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

Question 160.

The Golgi complex participates in

[4 Marks]

(A) Activation of amino acid

(B) Respiration in bacteria

(C) Formation of secretory vesicles

(D) Fatty acid breakdown

Question 161.

Which of the following is true for nucleolus?

[4 Marks]

(A) It takes part in spindle formation

(B) It is a site for active ribosomal RNA synthesis

(C) It is a membrane-bound structure

(D) Larger nucleoli are present in dividing cells

Question 162.

Select the correct match

[4 Marks]

(A) T.H. Morgan — Transduction

(B) F_2 × Recessive parent — Dihybrid cross

(C) G. Mendel — Transformation

(D) Ribozyme — Nucleic acid

Question 163.

Which of the following pairs is wrongly matched?

[4 Marks]

(A) T.H. Morgan — Linkage

(B) XO type sex determination — Grasshopper

(C) ABO blood grouping — Co-dominance

(D) Starch synthesis in pea — Multiple alleles

Question 164.

Natality refers to

[4 Marks]

(A) Number of individuals entering a habitat

(B) Number of individuals leaving the habitat

(C) Death rate

(D) Birth rate

Question 165.

Match the items given in Column I with those in Column II and select the correct option given below:

[4 Marks]

Column I	Column II
A. Herbarium	(i) It is a place having a collection of preserved plants and animals
B. Key	(ii) A list that enumerates methodically all the species found in an area with brief description aiding identification
C. Museum	(iii) Is a place where dried and pressed plant specimens mounted on sheets are kept
D. Catalogue	(iv) A booklet containing a list of characters and their alternates which are helpful in identification of various taxa.

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

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

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

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

Question 166.

Which of the following statements is correct?

[4 Marks]

(A) Horsetails are gymnosperms.

(B) Selaginella is heterosporous, while Salvinia is homosporous.

(C) Stems are usually unbranched in both Cycas and Cedrus.

(D) Ovules are not enclosed by ovary wall in gymnosperms.

Question 167.

Sweet potato is a modified

[4 Marks]

(A) Rhizome

(B) Tap root

(C) Adventitious root

(D) Stem

Question 168.

Conversion of milk to curd improves its nutritional value by increasing the amount of

[4 Marks]

(A) Vitamin B12

(B) Vitamin E

(C) Vitamin D

(D) Vitamin A

Question 169.

Which of the following gastric cells indirectly help in erythropoiesis?

[4 Marks]

(A) Goblet cells

(B) Parietal cells

(C) Mucous cells

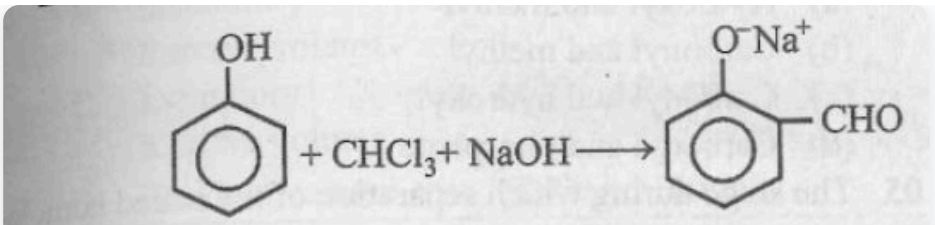
(D) Chief cells

Question 170.

In the reaction .

The electrophile involved is

[4 Marks]



The electrophile involved is

(a) Dichloromethyl cation $\left(\overset{\oplus}{C}HCl_2\right)$

(b) Formyl cation $\left(\overset{\oplus}{C}HO\right)$

(c) Dichlorocarbene $(:CCl_2)$

(d) Dichloromethyl anion $\left(\overset{\ominus}{C}HCl_2\right)$

(A) A

(B) B

(C) D

(D) C

Question 171.

Which one of the following statements is incorrect?

[4 Marks]

(A) Frictional force opposes the relative motion.

(B) Limiting value of static friction is directly proportional to normal reaction.

(C) Rolling friction is smaller than sliding friction.

(D) Coefficient of sliding friction has dimensions of length.

Question 172.

Which of the following statements is not true for halogens?

[4 Marks]

(A) All but fluorine shows positive oxidation states

(B) Chlorine has the highest electron-gain enthalpy

(C) All form monobasic oxyacids

(D) All are oxidizing agents

Question 173.

Which of these statements is incorrect?

[4 Marks]

(A) Enzymes of TCA cycle are present in mitochondrial matrix

(B) Glycolysis occurs in cytosol

(C) Oxidative phosphorylation takes place in outer mitochondrial membrane

(D) Glycolysis operates as long as it is supplied with NAD that can pick up hydrogen atoms

Question 174.

Which of the following characteristics represent Inheritance of blood groups' in humans?

A. Dominance

B. Co-dominance

C. Multiple allele

D. Incomplete dominance

E. Polygenic inheritance

[4 Marks]

(A) B,C and E

(B) A, B and C

(C) A,C and B

(D) B,D and E

Question 175.

Which of the following carbocations is expected to be most. stable?

[4 Marks]

(A)



(B)



(C)



(D)



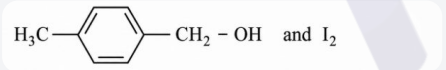
Question 176.

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.

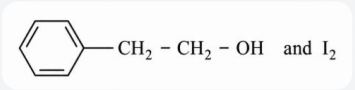
A and Y are respectively

[4 Marks]

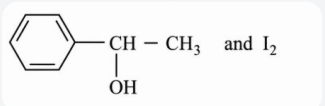
(A)



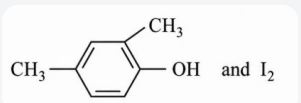
(B)



(C)



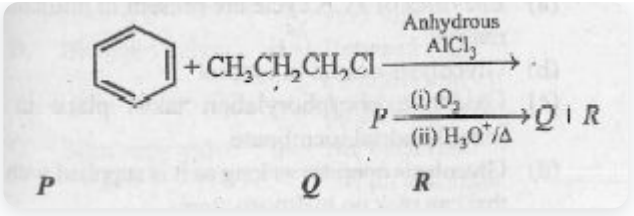
(D)



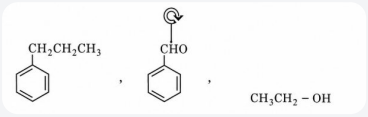
Question 177.

Identify the major products P, Q and R in the following sequence of reactions:

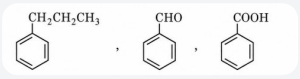
[4 Marks]



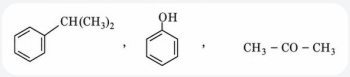
(A)



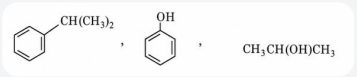
(B)



(C)



(D)



Question 178.

Among the following sets of examples for divergent evolution, select the incorrect option:

[4 Marks]

(A) Forelimbs of man, bat and cheetah

(B) Heart of bat, man and cheetah

(C) Eyeofoctopus, bat and man

(D) Brain of bat, man and cheetah

Question 179.

The similarity of bone structure in the forelimbs of many vertebrates is an example of

[4 Marks]

(A) Homology

(B) Analogy

(C) Convergent evolution

(D) Adaptive radiation

Question 180.

In which disease does 'mosquito transmitted pathogen cause chronic inflammation of lymphatic vessels?

[4 Marks]

(A) Ascariasis

(B) Elephantiasis

(C) Amoebiasis

(D) Ringworm disease