REVISON EXAM-1

NEET (UG) EXAMINATION

OBJECTIVE TYPE

Question No: 1

In the given nuclear reaction, the element X is

$^{22}_{11}\mathrm{Na} \rightarrow X + e^{+} + v$

(1) $^{22}_{12}\mathrm{Mg}$

(2) $^{23}_{11}\mathrm{Na}$

(3) $^{23}_{10}\mathrm{Ne}$

(4) $^{22}_{10}\mathrm{Ne}$

Question No: 2

The peak voltage of the ac source is equal to

(1) $\sqrt{2}$ times the rms value of the ac source

(2) $1/\sqrt{2}$ times the rms value of the ac source

(3) The value of voltage supplied to the circuit

(4) The rms value of the ac source

Question No: 3

A full wave rectifier circuit consists of two $p-n$ junction diodes, a centre-tapped transformer, capacitor and a load resistance. Which of these components remove the ac ripple from the rectified output?

(1) A centre-tapped transformer

(2) p-n junction diodes

(3) Capacitor

(4) Load resistance

Question No: 4

A series LCR circuit with inductance $10\mathrm{H}$, capacitance $10\mu\mathrm{F}$, resistance 50Ω is connected to an ac source of voltage, $V = 200\sin(100t)$ volt. If the resonant frequency of the LCR circuit is v_0 and the frequency of the ac source is v, then

(1) $v_0 = \frac{50}{\pi}\mathrm{Hz}, \mathrm{v} = 50\ \mathrm{Hz}$

(2) $v = 100\ \mathrm{Hz}; v_0 = \frac{100}{\pi}\mathrm{Hz}$

(3) $v_0 = v = 50\ \mathrm{Hz}$

(4) $v_0 = v = \frac{50}{\pi}\mathrm{Hz}$

Question No: 5

An ideal monoatomic gas at $27°\mathrm{C}$ is compressed adiabatically to 8/27 times of its present volume. The increase in temperature of the gas is

1) $375°\mathrm{C}$ 2) $402°\mathrm{C}$ 3) $175°\mathrm{C}$ 4) $475°\mathrm{C}$

Question No: 6

A small hole of area of cross-section 2 mm^2 is present near the bottom of a fully filled open tank of height 2 m. Taking g = 10 $\mathrm{m/s}^2$, the rate of flow of water through the open hole would be nearly

(1) $12.6 \times 10^{-6}\ \mathrm{m}^3/\mathrm{s}$ (2) $8.9 \times 10^{-6}\ \mathrm{m}^3/\mathrm{s}$

(3) $2.23 \times 10^{-6}\ \mathrm{m}^3/\mathrm{s}$ (4) $6.4 \times 10^{-6}\ \mathrm{m}^3/\mathrm{s}$

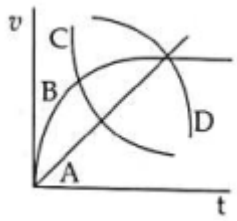
Question No: 7

The periodic time of a simple pendulum of length 1 m and amplitude 2 cm is 5 seconds. If the amplitude is made 4 cm. Its periodic time in seconds will be

1) 2.5 2) 5 3) 10 4) $5\sqrt{2}$

Question No: 8

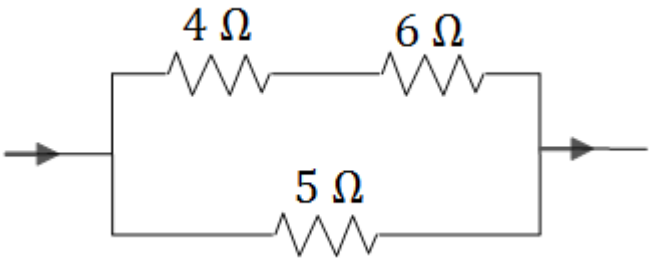
A spherical ball is dropped in a long column of a highly viscous liquid. The curve in the graph shown, which represents the speed of the ball (v) as a function of time (t) is



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

Question No: 9

In the circuit shown, the heat produced in the 5Ω resistor due to current flowing in it is $10\ \text{cal} - \text{s}^{-1}$. The heat generated in Ω resistor is



1) $1\ \text{cal} - \text{s}^{-1}$ 2) $2\ \text{cal} - \text{s}^{-1}$ 3) $3\ \text{cal} - \text{s}^{-1}$ 4) $4\ \text{cal} - \text{s}^{-1}$

Question No: 10

In satellite communication, the communication satellite;

1) Acts as a reflector for a beam of modulated microwave from transmitter sent directly towards it
2) Acts as a repeater for a signal reaching there, without any change in frequency
3) Receives the coming modulated microwave signal, amplifies it and returns it to earth at a different frequency
4) None of the above

Question No: 11

A ball is projected with a velocity, $10\ \text{ms}^{-1}$, at an angle of 60° with the vertical direction. Its speed at the highest point of its trajectory will be

(1) Zero
(2) $5\sqrt{3}\ \text{ms}^{-1}$
(3) $5\ \text{ms}^{-1}$
(4) $10\ \text{ms}^{-1}$

Question No: 12

A ball is projected with a velocity, $10\ \text{ms}^{-1}$, at an angle of 60° with the vertical direction. Its speed at the highest point of its trajectory will be

(1) $5\sqrt{3}\ \text{ms}^{-1}$
(2) $5\ \text{ms}^{-1}$
(3) $10\ \text{ms}^{-1}$
(4) Zero

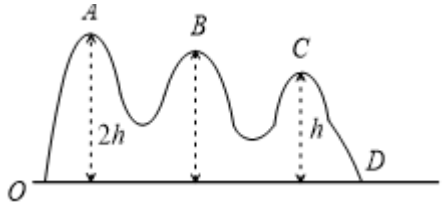
Question No: 13

In a Young's double slit experiment, the separation of the two slits is doubled. To keep the same spacing of fringes, the distance D of the screen from the slits should be made

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

Question No: 14

A small roller coaster starts at point A with a speed u on a curved track as shown in figure



The friction between the roller coaster and the track is negligible and it always remains in contact with the track. The speed of the roller coaster at point D on the track will be

1) $(u^2 + gh)^{\frac{1}{2}}$ 2) $(u^2 + 2gh)^{\frac{1}{2}}$ 3) $(u^2 + 4gh)^{\frac{1}{2}}$ 4) u

Question No: 15

The radius of inner most orbit of hydrogen atom is 5.3×10^{-11} m. What is the radius of third allowed orbit of hydrogen atom?

(1) 1.06 A

(2) 1.59 A

(3) 4.77Å

(4) 0.53Å

Question No: 16

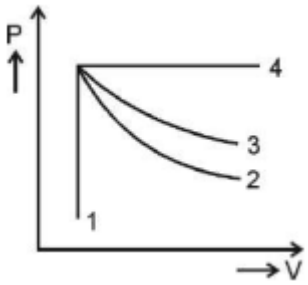
A body starting from rest moves with constant acceleration. The ratio of distance covered by the body during the 5^{th} sec to that covered in 5 sec is

1) $9/15$ 2) $3/5$ 3) $25/9$ 4) $1/25$

Question No: 17

An ideal gas undergoes four different processes from the same initial state as shown in the figure below. Those processes are adiabatic, isothermal, isobaric and isochoric. The curve which

represents the adiabatic process among 1, 2, 3 and 4 is



(1) 4

(2) 1

(3) 2

(4) 3

Question No: 18

A ball is projected with a velocity, $10\ \text{ms}^{-1}$, at an angle of 60° with the vertical direction. Its speed at the highest point of its trajectory will be

(1) $10\ \text{ms}^{-1}$

(2) Zero

(3) $5\sqrt{3}\ \text{ms}^{-1}$

(4) $5\ \text{ms}^{-1}$

Question No: 19

When two monochromatic lights of frequency, v and $\frac{v}{2}$ are incident on a photoelectric metal, their stopping potential becomes $\frac{V_s}{2}$ and V_s respectively. The threshold frequency for this metal is

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

Question No: 20

The value of $\frac{pV}{T}$ for one mole of an ideal gas is nearly equal to

1) $2\ \text{J mol}^{-1}\ \text{K}^{-1}$ 2) $8.3\ \text{J mol}^{-1}\ \text{K}^{-1}$ 3) $4.2\ \text{J mol}^{-1}\ \text{K}^{-1}$ 4) $2\ \text{cal mol}^{-1}\ \text{K}^{-1}$

Question No: 21

An electric lift with a maximum load of $2000\ \text{kg}$ (lift + passengers) is moving up with a constant speed of $1.5\ \text{ms}^{-1}$. The frictional force opposing the motion is $3000\ \text{N}$. The minimum power delivered by the motor to the lift in watts is : $\left(g = 10\ \text{m s}^{-2}\right)$

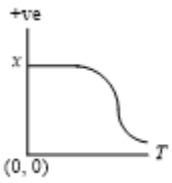
(1) 23500
(2) 23000
(3) 20000
(4) 34500

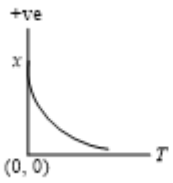
Question No: 22

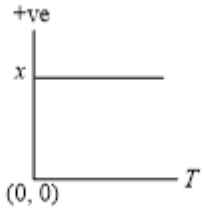
As the temperature increases, the electrical resistance
(1) Decreases for both conductors and semiconductors
(2) Increases for conductors but decreases for semiconductors
(3) Decreases for conductors but increases for semiconductors
(4) Increases for both conductors and semiconductors

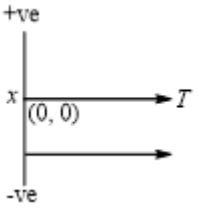
Question No: 23

The variation of magnetic susceptibility (χ) with absolute temperature T for a ferromagnetic is given in figure , by

1) 

2) 

3) 

4) 

Question No: 24

The effect of rotation of the earth on the value of acceleration due to gravity is
1) g is maximum at the equator and maximum at the poles
2) g is minimum at the equator and maximum at the poles
3) g is maximum at the both poles
4) g is minimum at the both poles

Question No: 25

Four wires of the same material are stretched by the same load. Which one of them will elongate most if their dimensions are as follows

1) L = 100 cm, r = 1mm
2) L = 200 cm, r = 3mm
3) L = 300 cm, r = 3mm
4) L = 400 cm, r = 4mm

Question No: 26

A battery has an emf of 15V and internal resistance of 1Ω . Is the terminal to terminal potential difference less than, equal to or greater than 15V if the current in the battery is (1) from negative to positive terminal, (2) from positive to negative terminal (3) zero current?

1) Less, grater, equal
2) Less, less, equal
3) Greater, greater, equal
4) Greater, less, equal

Question No: 27

The peak voltage of the ac source is equal to

(1) $\sqrt{2}$ times the rms value of the ac source

(2) $1/\sqrt{2}$ times the rms value of the ac source

(3) The value of voltage supplied to the circuit

(4) The rms value of the ac source

Question No: 28

Two hollow conducting spheres of radii R_1 and R_2 $(R_1 \gg R_2)$ have equal charges. The potential would be

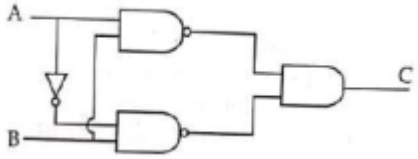
(1) Equal on both the spheres

(2) Dependent on the material property of the sphere

(3) More on bigger sphere

(4) More on smaller sphere

Question No: 29



The truth table for the given logic circuit is

(1)

A	B	C
0	0	1
0	1	0
1	0	0
1	1	1

(2)

A	B	C
0	0	1
0	1	0
1	0	1
1	1	0

(3)

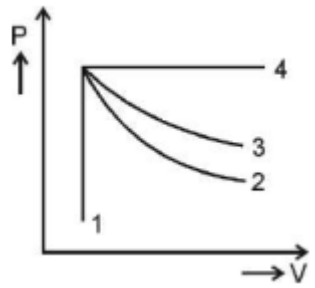
A	B	C
0	0	0
0	1	1
1	0	0
1	1	1

(4)

A	B	C
0	0	0
0	1	1
1	0	1
1	1	0

Question No: 30

An ideal gas undergoes four different processes from the same initial state as shown in the figure below. Those processes are adiabatic, isothermal, isobaric and isochoric. The curve which represents the adiabatic process among $1, 2, 3$ and 4 is



(1) 1

(2) 2

(3) 3

(4) 4

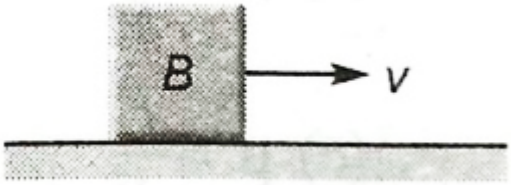
Question No: 31

Two pendulums of length $121\ \text{cm}$ and $100\ \text{cm}$ start vibrating in phase. At some instant, the two are at their mean position in the same phase. The minimum number of vibrations of the shorter pendulum after which the two are again in phase at the mean position is:

(1) 11
(2) 9
(3) 10
(4) 8

Question No: 32

A block B is pushed momentarily along a horizontal surface with an initial velocity v. If μ is the coefficient of sliding friction between B and the surface, block B will come to rest after a time



1) $\frac{v}{g\mu}$ 2) $\frac{g\mu}{v}$ 3) $\frac{g}{v}$ 4) $\frac{v}{g}$

Question No: 33

A copper wire of length $10\ \mathrm{m}$ and radius $\left(\frac{10^{-2}}{\sqrt{\pi}}\right)\ \mathrm{m}$ has electrical resistance of 10Ω. The current density in the wire for an electric field strength of $10(\ \mathrm{V/m})$ is

(1) $10^{6}\ \mathrm{A/m^2}$
(2) $10^{-5}\ \mathrm{A/m^2}$
(3) $10^{5}\ \mathrm{A/m^2}$
(4) $10^{4}\ \mathrm{A/m^2}$

Question No: 34

Match List-I with List-II

	List-I (Electromagnetic waves)		List-II (Wavelength)
(a)	AM radio waves	(i)	10^{-10} m
(b)	Microwaves	(ii)	10^{2} m
(c)	Infrared radiations	(iii)	10^{-2} m
(d)	X-rays	(iv)	10^{-4} m

Choose the correct answer from the options given below

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

Question No: 35

When two monochromatic lights of frequency, v and $\frac{v}{2}$ are incident on a photoelectric metal, their stopping potential becomes $\frac{V_s}{2}$ and V_s respectively. The threshold frequency for this metal is

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

Question No: 36

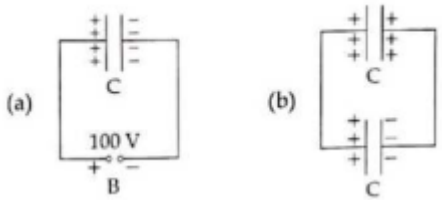
Two objects of mass $10\ \mathrm{kg}$ and $20\ \mathrm{kg}$ respectively are connected to the two ends of a rigid rod of length $10\ \mathrm{m}$ with negligible mass. The distance of the center of mass of the system from the $10\ \mathrm{kg}$ mass is

(1) $5\ \mathrm{m}$
(2) $\frac{10}{3}\ \mathrm{m}$

(3) $\frac{20}{3}$ m
(4) 10 m

Question No: 37

A capacitor of capacitance $C = 900\text{pF}$ is charged fully by 100 V battery B as shown in figure (a). Then it is disconnected from the battery and connected to another uncharged capacitor of capacitance $C = 900\text{pF}$ as shown in figure (b). The electrostatic energy stored by the system (b) is



(1) 1.5×10^{-6} J
(2) 4.5×10^{-6} J
(3) 3.25×10^{-6} J
(4) 2.25×10^{-6} J

Question No: 38

The energy that will be ideally radiated by a 100 kW transmitter in 1 hour is
(1) 36×10^{5} J
(2) 1×10^{5} J
(3) 36×10^{7} J
(4) 36×10^{4} J

Question No: 39

The angular speed of a fly wheel moving with uniform angular acceleration changes from 1200rpm to 3120 rpm in 16 seconds. The angular acceleration in rad/s^2 is
(1) 2π
(2) 4π
(3) 12π
(4) 104π

Question No: 40

The angle between the electric lines of force and the equipotential surface is
(1) 180°
(2) 0°
(3) 45°
(4) 90°

Question No: 41

Frequency is the function of density (ρ) , length (a) and surface tension (T). Then its value is

1) $k\rho^{1/2}a^{3/2}/\sqrt{T}$ 2) $k\rho^{3/2}a^{3/2}/\sqrt{T}$ 3) $k\rho^{1/2}a^{3/2}/T^{3/4}$ 4) None of these

Question No: 42

A mass 1 kg suspended from a spring shoes force constant is 400 Nm^{-1} , executes simple harmonic oscillation. When the total energy of the oscillator is 2j, the maximum acceleration experienced by the mass will be

1) $2\ \text{ms}^{-2}$ 2) $4\ \text{ms}^{-2}$ 3) $40\ \text{ms}^{-2}$ 4) $400\ \text{ms}^{-2}$

Question No: 43

A biconvex lens has radii of curvature, 20 cm each. If the refractive index of the material of the lens is 1.5 , the power of the lens is
(1) $+5\text{D}$
(2) Infinity
(3) $+2\text{D}$
(4) $+20\text{D}$

Question No: 44

Match List-I with List-II

	List-I (Electromagnetic waves)		List-II (Wavelength)
(a)	AM radio waves	(i)	10^{-10} m
(b)	Microwaves	(ii)	10^{2} m
(c)	Infrared radiations	(iii)	10^{-2} m
(d)	X-rays	(iv)	10^{-4} m

Choose the correct answer from the options given below

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

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

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

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

Question No: 45

A wire carrying a current $/$ along the positive x-axis has length L. It is kept in a magnetic field $\vec{B} = (2\hat{i} + 3\hat{j} - 4\hat{k})T$. The magnitude of the magnetic force acting on the wire is

(1) $3\mathrm{IL}$

(2) $\sqrt{5}/\mathrm{L}$

(3) $5\mathrm{IL}$

(4) $\sqrt{3}/\mathrm{L}$

Question No: 46

The venturi-meter works on

(1) Huygen's principle

(2) Bernoulli's principle

(3) The principle of parallel axes

(4) The principle of perpendicular axes

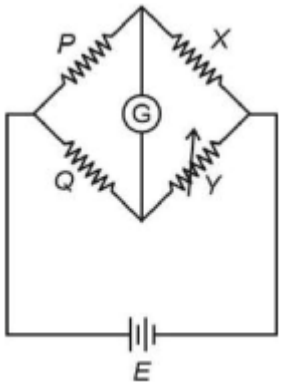
Question No: 47

In the above question, the percentage increase in the time of flight of the projectile will be

1) 5% 2) 10% 3) 15% 4) 20%

Question No: 48

A wheatstone bridge is used to determine the value of unknown resistance X by adjusting the variable resistance Y as shown in the figure. For the most precise measurement of X, the resistances P and Q



(1) Should be approximately equal and are small

(2) Should be very large and unequal

(3) Do not play any significant role

(4) Should be approximately equal to $2\mathrm{X}$

Question No: 49

Amount of heat required to convert 10 g of ice to water at 20℃ is

1) 80 cal 2) 100 cal 3) 1000 cal 4) 540 cal

Question No: 50

The ratio of the distances travelled by a freely falling body in the 1^{st} , 2^{nd} , 3^{rd} and 4^{th} second

(1) $1 : 4 : 9 : 16$

(2) $1 : 3 : 5 : 7$

(3) $1 : 1 : 1 : 1$

(4) $1 : 2 : 3 : 4$

Question No: 51

Pumice stone is an example of

(1) Sol

(2) Gel

(3) Solid sol

(4) Foam

Question No: 52

A compound is formed by two elements A and B. The element B forms cubic close packed structure and atoms of A occupy $1/3$ of tetrahedral voids. If the formula of the compound is A_xB_y, then the value of $x + y$ is in option

(1) 5

(2) 4

(3) 3

(4) 2

Question No: 53

Which is not present in clear hard water?

1) $Mg(HCO_3)_2$ 2) $CaCl_2$ 3) $MgSO_4$ 4) $MgCO_3$

Question No: 54

Amongst the following which one will have maximum 'lone pair - lone pair' electron repulsions?

(1) IF_5

(2) SF_4

(3) XeF_2

(4) ClF_3

Question No: 55

Which of the following has the maximum number of unpaired d -elelments?

1) Fe^{2+} 2) Cu^{+} 3) Zn 4) Ni^{3+}

Question No: 56

A compound is formed by two elements A and B. The element B forms cubic close packed structure and atoms of A occupy $1/3$ of tetrahedral voids. If the formula of the compound is A_xB_y, then the value of $x + y$ is in option

(1) 4

(2) 3

(3) 2

(4) 5

Question No: 57

Match List-I with List-II.

	List-I (Ores)		**List-II (Composition)**
(a)	Haematite	(i)	Fe_3O_4
(b)	Magnetite	(ii)	$ZnCO_3$
(c)	Calamine	(iii)	Fe_2O_3
(d)	Kaolinite	(iv)	$[Al_2(OH)_4Si_2O_5]$

Choose the correct answer from the options given below:

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

Question No: 58

Astandard hydrogen electrode has zero electrode potential because

1) Hydrogen is easier to oxidise
2) This electrode potential is assumed to be zero
3) Hydrogen atom has only one electron
4) Hydrogen is the lightest element

Question No: 59

The structure of ICl_2^- is:

1) Trigonal
2) Octahedral
3) Square planar
4) Distorted trigonal bipyramid

Question No: 60

Pumice stone is an example of
(1) Sol
(2) Gel
(3) Solid sol
(4) Foam

Question No: 61

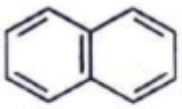
Given below are two statements: one is labelled as Assertion $\mathbf{A}$ and the other is labelled as Reason $\mathbf{R}$
Assertion A : In equation $\Delta_r G = -nFE_{\text{cell}}$ value of $\Delta_r G$ depends on n.
Reasons $\mathbf{R}$: E_{cell} is an intensive property and $\Delta_r G$ is an extensive property.
In the light of the above statements, choose the correct answer from the options given below
(1) Both $\mathbf{A}$ and $\mathbf{R}$ are true and $\mathbf{R}$ is the correct explanation of $\mathbf{A}$
(2) Both $\mathbf{A}$ and $\mathbf{R}$ are true and $\mathbf{R}$ is NOT the correct explanation of $\mathbf{A}$
(3) $\mathbf{A}$ is true but $\mathbf{R}$ is false
(4) A is false but $\mathbf{R}$ is true

Question No: 62

The pollution due to oxides of sulphur gets enhanced due to the presence of:
(a) particulate matter
(b) ozone
(c) hydrocarbons
(d) hydrogen peroxide
Choose the most appropriate answer from the options given below:
(1) (a), (c), (d) only
(2) (a), (d) only
(3) (a), (b), (d) only
(4) (b), (c), (d) only

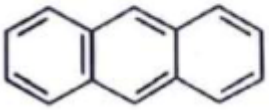
Question No: 63

Consider the following compounds/species:

i.  ii. 

iii.  iv. 

v.  vi. 

vii. 

The number of compounds/species which obey Huckel's rule is
(1) 4
(2) 6
(3) 2
(4) 5

Question No: 64

The treatment of benzene with benzoyl chloride in the presence of $AlCl_3$ gives

1) Benzaldehyde 2) Benzophenone 3) Diphenyl 4) Cyclohexane

Question No: 65

Schottky defects occurs mainly in electrovalent compounds where
1) Positive ions and negative ions are of different size
2) Positive ions and negative ions are of same size
3) Positive ions are small and negative ions are big
4) Positive ions are big and negative ions are small

Question No: 66

Standard reduction potential of most of the transition elements is generally:

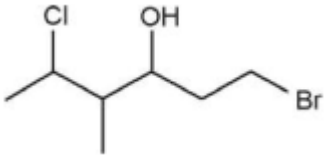
1) Negative 2) Positive 3) Zero 4) None of these

Question No: 67

The IUPAC name of an element with atomic number 119 is
(1) ununennium
(2) unnilennium
(3) unununnium
(4) ununoctium

Question No: 68

The correct IUPAC name of the following compound is



(1) 6-bromo-4-methyl-2-chlorohexan-4-ol
(2) 1-bromo-5-chloro-4-methylhexan-3-ol
(3) 6-bromo-2-chloro-4-methylhexan-4-ol
(4) 1-bromo-4-methyl-5-chlorohexan-3-ol

Question No: 69

Match List-I with List-II :

	List-I (Oxoacids of Sulphur)		List-II (Bonds)
A.	Peroxodisulphuric acid	I.	Two S–OH, Four S=O, One S–O–S
B.	Sulphuric acid	II.	Two S–OH, One S=O
C.	Pyrosulphuric acid	III.	Two S–OH, Four S=O, One S–O–O–S
D.	Sulphurous acid	IV.	Two S–OH, Two S=O

Choose the correct answer from the options given below.

(1) A-I, B-III, C-II, D-IV

(2) A-III, B-IV, C-I, D-II

(3) A-I, B-III, C-IV, D-II

(4) A-III, B-IV, C-II, D-I

Question No: 70

Which of the following statements are NOT correct?

A. Hydrogen is used to reduce heavy metal oxides to metals.

B. Heavy water is used to study reaction mechanism.

C. Hydrogen is used to make saturated fats from oils.

D. The $\mathrm{H-H}$ bond dissociation enthalpy is lowest as compared to a single bond between two atoms of any elements.

E. Hydrogen reduces oxides of metals that are more active than iron.

Choose the most appropriate answer from the options given below:

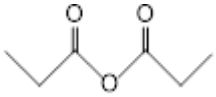
(1) B, C, D, E only

(2) B, D only

(3) D, E only

(4) A, B, C only

Question No: 71



The IUPAC name of the compound is

1) Propionic anhydride
2) Dipropanoic anhydride
3) Ethoxy propanoic acid
4) Propanoic anhydride

Question No: 72

Given below are two statements

Statement I:

The acidic strength of monosubstituted nitrophenol is higher than phenol because of electron withdrawing nitro group.

Statement II:

o-nitrophenol, m-nitrophenol and p-nitrophenol will have same acidic strength as they have one nitro group attached to the phenolic ring.

In the light of the above statements, choose the most appropriate answer from the options given below:

(1) Statement I is incorrect but Statement II is correct.

(2) Both Statement I and Statement II are correct.

(3) Both Statement I and Statement II are incorrect.

(4) Statement I is correct but Statement II is incorrect.

Question No: 73

What is the correct electronic configuration of the central atom in $K_4[Fe(CN)_6]$ based on crystal field theory?

(1) $t_{2g}^4 e_g^2$

(2) $t_{2g}^6 e_g^0$

(3) $e^3 t_2^3$

(4) $e^4 t_2^2$

Question No: 74

Which one is malachite from the following?

(1) $CuFeS_2$ (2) $Cu(OH)_2$

(3) Fe_3O_4 (4) $CuCO_3.Cu(OH)_2$

Question No: 75

As the speed of molecules increases, the number of collisions per second:

1) Decreases 2) Increases 3) Does not change 4) None of these

Question No: 76

Gadolinium has a low value of third ionisation enthalpy because of

(1) high electronegativity

(2) high basic character

(3) small size

(4) high exchange enthalpy

Question No: 77

Given below are two statements

Statement I: In the coagulation of a negative sol, the flocculating power of the three given ions is in the order $Al^{3+} > Ba^{2+} > Na^{+}$

Statement II: In the coagulation of a positive sol, the flocculating power of the three given salts is in the order $NaCl > Na_2SO_4 > Na_3PO_4$

In the light of the above statements, choose the most appropriate answer from the options given below

(1) Statement I is incorrect but Statement II is correct.

(2) Both Statement I and Statement II are correct.

(3) Both Statement I and Statement II are incorrect.

(4) Statement I is correct but Statement II is incorrect.

Question No: 78

Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A):

In a particular point defect, an ionic solid is electrically neutral, even if few of its cations are missing from its unit cells.

Reason (R):

In an ionic solid, Frenkel defect arises due to dislocation of cation from its lattice site to interstitial site, maintaining overall electrical neutrality.

In the light of the above statements, choose the most appropriate answer from the options given below:

(1) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(2) (A) is correct but (R) is not correct

(3) (A) is not correct but (R) is correct

(4) Both (A) and (R) are correct and (R) is the correct explanation of (A)

Question No: 79

A cell constructed by coupling a standard copper electrode and a standard magnesium electrode has emf of 2.7 V. If the standard reduction potential of copper electrode is +0.34 V then that of the magnesium electrode is

1) $+2.36\ V$ 2) $-2.36\ V$ 3) $+3.26\ V$ 4) $-3.26\ V$

Question No: 80

The IUPAC name of an element with atomic number 119 is

(1) ununennium

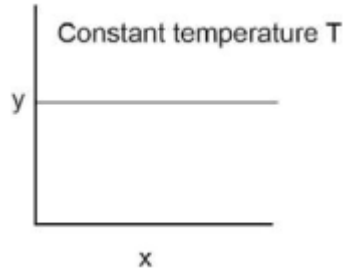
(2) unnilennium

(3) unununnium

(4) ununoctium

Question No: 81

The given graph is a representation of kinetics of a reaction.



The y and x axes for zero and first order reactions, respectively are

(1) zero order (y = rate and x = concentration), first order (y = rate and $x = t\%z$)

(2) zero order (y = concentration and x = time), first order ($y = t/z$ and x = concentration)

(3) zero order (y = concentration and x = time), first order (y = rate constant and x = concentration)

(4) zero order (y = rate and x = concentration), first order ($y = t\%$ and x = concentration)

Question No: 82

The process of heating of steel to temperature much below redness and then slowly cooling is called:

1) Annealing 2) Hardening 3) Tempering 4) Case hardening

Question No: 83

Match List-I with List-II

List-I		List-II	
(a)	Li	(i)	absorbent for carbon dioxide
(b)	Na	(ii)	electrochemical cells
(c)	KOH	(iii)	coolant in fast breeder reactors
(d)	Cs	(iv)	photoelectric cell

Choose the correct answer from the options given below :

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

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

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

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

Question No: 84

If dispersion medium is water, the colloidal system is called :

1) Sol 2) Aerosol 3) Organosol 4) Aquasol

Question No: 85

Paramagnetism of oxygen is explained on the basis of its electronic configuration of

1) $(\pi^*2p_x)^1(\pi^*2p_y)^1$ 2) $(\pi^*2p_y)^1(\pi^*2p_z)^1$ 3) $(\sigma^*2s)^1(\pi2p_y)^1$ 4) $(\pi^*2p_x)^1(\pi2p_z)^1$

Question No: 86

Which of the following is not a thermoset?

1) Glyptal
2) Bakelite
3) Melamine-formaldehyde polymer
4) Styrene-butadiene rubber

Question No: 87

Given below are two statements

Statement I:

In the coagulation of a negative sol, the flocculating power of the three given ions is in the order $Al^{3+} > Ba^{2+} > Na^{+}$

Statement II:

In the coagulation of a positive sol, the flocculating power of the three given salts is in the order $NaCl > Na_2SO_4 > Na_3PO_4$

In the light of the above statements, choose the most appropriate answer from the options given below

(1) Statement I is correct but Statement II is incorrect.

(2) Statement I is incorrect but Statement II is correct.

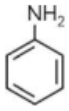
(3) Both Statement I and Statement II are correct.

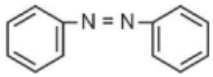
(4) Both Statement I and Statement II are incorrect.

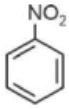
Question No: 88

The Kjeldahl's method for the estimation of nitrogen can be used to estimate the amount of nitrogen in which one of the following compounds?

(1) 

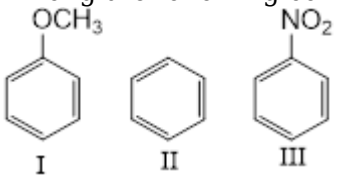
(2) 

(3) 

(4) 

Question No: 89

Among the following compounds (I-III) the correct order of reaction with electrophilic reagand is



1) II>III>I 2) III<I<II 3) I>II>III 4) I=II>III

Question No: 90

Which of the following sequence of reactions is suitable to synthesize chlorobenzene?

(1)  HCl

(2)  , HCl, Heating

(3) Benzene, Cl_2, anhydrous $FeCl_3$

(4) Phenol, $NaNO_2$, HCl, CuCl

Question No: 91

Identify the incorrect statement from the following.

(1) All the five $4d$ orbitals have shapes similar to the respective $3d$ orbitals.

(2) In an atom, all the five $3d$ orbitals are equal in energy in free state.

(3) The shapes of d_{xy}, d_{yz} and d_{zx} orbitals are similar to each other; and $d_{x^2-y^2}$ and d_{z^2} are similar to each other.

(4) All the five $5d$ orbitals are different in size when compared to the respective $4d$ orbitals.

Question No: 92

Which compound amongst the following is not an aromatic compound?

(1) 

(2) 

(3) 

(4) 

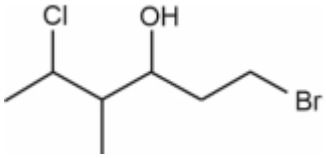
Question No: 93

Molal depression of freezing point of water is 1.86 $^{\circ}C$ per 1000 g of water. 0.02 mole of urea dissolved in 100 g of water will produce a lowering of temperature of :

1) 0.186 °C 2) 0.372 °C 3) 1.86 °C 4) 3.72 °C

Question No: 94

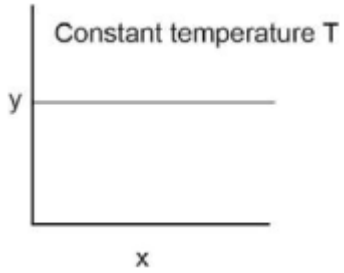
The correct IUPAC name of the following compound is



(1) 1-bromo-4-methyl-5-chlorohexan-3-ol
(2) 6-bromo-4-methyl-2-chlorohexan-4-ol
(3) 1-bromo-5-chloro-4-methylhexan-3-ol
(4) 6-bromo-2-chloro-4-methythexan-4-ol

Question No: 95

The given graph is a representation of kinetics of a reaction.



The y and x axes for zero and first order reactions, respectively are
(1) zero order ($y =$ rate and $x =$ concentration), first order ($y = t\%$ and $x =$ concentration)
(2) zero order ($y =$ rate and $x =$ concentration), first order $(y =$ rate and $x = t\%)$
(3) zero order ($y =$ concentration and $x =$ time), first order $(y = t/2$ and $x =$ concentration)
(4) zero order ($y =$ concentration and $x =$ time), first order $(y =$ rate constant and $x =$ concentration)

Question No: 96

Which compound amongst the following is not an aromatic compound?

(1) 
(2) 
(3) 
(4) 

Question No: 97

Match List-I with List-II.

	List-I (Ores)		**List-II (Composition)**
(a)	Haematite	(i)	Fe_3O_4
(b)	Magnetite	(ii)	$ZnCO_3$
(c)	Calamine	(iii)	Fe_2O_3
(d)	Kaolinite	(iv)	$[Al_2(OH)_4Si_2O_5]$

Choose the correct answer from the options given below:
(1) (a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)
(2) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)
(3) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)
(4) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

Question No: 98

The order of energy absorbed which is responsible for the color of complexes

(A) $[Ni(H_2O)_2(en)_2]^{2+}$
(B) $[Ni(H_2O)_4(en)]^{2+}$ and
(C) $[Ni(en)3]^{2+}$ is
(1) $(C) > (B) > (A)$
(2) (C) $>$(A)$>$ (B)
(3) (B) $>$(A)$>$ (C)
(4) (A)$>$(B)$>$ (C)

Question No: 99

Esterification of alcohols involves:
1) H of alcohol and Oh of acid
2) OH of alcohol and H of acid
3) OH of alcohol and OH of acid
4) H of alcohol and H of acid

Question No: 100

The incorrect statement regarding enzymes is
(1) Like chemical catalysts enzymes reduce the activation energy of bio processes.
(2) Enzymes are polysaccharides.
(3) Enzymes are very specific for a particular reaction and substrate.
(4) Enzymes are biocatalysts.

Question No: 101

Given below are two statements:
Statement I :
The coagulum is formed of network of threads called thrombins.
Statement II :
Spleen is the graveyard of erythrocytes.
In the light of the above statements, choose the most appropriate answer from the options given below :
(1) Both Statement I and Statement II are incorrect
(2) Statement I is correct but Statement II is incorrect
(3) Statement I is incorrect but Statement II is correct
(4) Both Statement I and Statement II are correct

Question No: 102

Which of the following occurs due to the presence of autosome linked dominant trait ?
(1) Thalessemia
(2) Sickle cell anaemia
(3) Myotonic dystrophy
(4) Haemophilia

Question No: 103

Select the correct statements with reference to chordates.
A. Presence of a mid-dorsal, solid and double nerve cord.
B. Presence of closed circulatory system.
C. Presence of paired pharyngeal gill slits.
D. Presence of dorsal heart
E. Triploblastic pseudocoelomate animals.
Choose the correct answer from the options given below:
(1) A, C and D only
(2) B and C only
(3) B, D and E only
(4) C, D and E only
Answer (2)

188. The parts of human brain that helps in regulation of sexual behaviour, expression of excitement, pleasure, rage, fear etc. are:
(1) Limbic system and hypothalamus
(2) Corpora quadrigemina and hippocampus
(3) Brain stem and epithalamus
(4) Corpus callosum and thalamus
Answer (1)
189. The unique mammalian characteristics are:
(1) hairs, tympanic membrane and mammary glands
(2) hairs, pinna and mammary glands
(3) hairs, pinna and indirect development
(4) pinna, monocondylic skull and mammary glands
Answer (2)
190. Which of the following are NOT under the control of thyroid hormone?
A. Maintenance of water and electrolyte balance
B. Regulation of basal metabolic rate
C. Normal rhythm of sleep-wake cycle
D. Development of immune system
E. Support the process of RBCs formation

Question No: 104

When pea seeds and wheat seeds are put in water, which of the two will imbibe more water?

1) Wheat seeds
2) Pea seeds
3) Both will imbibe equal amount of water
4) Pea seeds imbibe water only at alkaline pH

Question No: 105

Which of the following statements is not true?
(1) Flippers of penguins and dolphins are a pair of homologous organs
(2) Analogous structures are a result of convergent evolution
(3) Sweet potato and potato is an example of analogy
(4) Homology indicates common ancestry

Question No: 106

Which one of the following is the reason for higher rate of transpiration in Sorghum as compared to maize?

1) Increased shoot/root ratio
2) Increased rate of respiratory quotient
3) Increased rate of phototsynthesis
4) Decreased shoot/root ratio

Question No: 107

Read the following statements and choose the set of correct statements :
(a) Euchromatin is loosely packed chromatin
(b) Heterochromatin is transcriptionally active
(c) Histone octomer is wrapped by negatively charged DNA in nucleosome
(d) Histones are rich in lysine and arginine
(e) A typical nucleosome contains $400bp$ of DNA helix
Choose the correct answer from the options given below :
(1) (b), (d), (e) Only
(2) (a), (c), (d) Only
(3) (b), (e) Only
(4) (a), (c), (e) Only

Question No: 108

Statements related to human Insulin are given below.
Which statement(s) is/are correct about genetically engineered Insulin?
(a) Pro-hormone insulin contain extra stretch of C-peptide
(b) A-peptide and B-peptide chains of insulin were produced separately in E.coli, extracted and

combined by creating disulphide bond between them.
(c) Insulin used for treating Diabetes was extracted from Cattles and Pigs.
(d) Pro-hormone Insulin needs to be processed for converting into a mature and functional hormone.
(e) Some patients develop allergic reactions to the foreign insulin.
Choose the most appropriate answer from the options given below:
(1) (b) only
(2) (c) and (d) only
(3) (c), (d) and (e) only
(4) (a), (b) and (d) only

Question No: 109

Identify the correct set of statements :
(a) The leaflets are modified into pointed hard thorns in Citrus and Bougainvillea
(b) Axillary buds form slender and spirally coiled tendrils in cucumber and pumpkin
(c) Stem is flattened and fleshy in Opuntia and modified to perform the function of leaves
(d) Rhizophora shows vertically upward growing roots that help to get oxygen for respiration
(e) Subaerially growing stems in grasses and strawberry help in vegetative propagation
Choose the correct answer from the options given below :
(1) (a), (b), (d) and (e) Only
(2) (b) and (c) Only
(3) (a) and (d) Only
(4) (b), (c), (d) and (e) Only

Question No: 110

In which of the following animals, digestive tract has additional chambers like crop and gizzard?
(1) Catla, Columba, Crocodilus
(2) Pavo, Psittacula, Corvus
(3) Corvus, Columba, Chameleon
(4) Bufo, Balaenoptera, Bangarus

Question No: 111

Aggregate fruit develops from
1) Multicarpellary, apocarpous ovary
2) Multicarpellary ovary
3) Multicarpellary, syncarpous ovary
4) Monocarpellary ovary

Question No: 112

Given below are two statements :
Statement I: Low temperature preserves the enzyme in a temporarily inactive state whereas high temperature destroys enzymatic activity because proteins are denatured by heat.
Statement II : When the inhibitor closely resembles the substrate in its molecular structure and inhibits the activity of the enzyme, it is known as competitive inhibitor.
In the light of the above statements, choose the correct answer from the options given below :
(1) Both Statement I and Statement II are false.
(2) Statement I is true but Statement II is false.
(3) Statement I is false but Statement II is true.
(4) Both Statement I and Statement II are true.

Question No: 113

Which of the following is not an excretory organ?
1) Liver
2) Book lungs
3) Kidney
4) Hepatopancreas

Question No: 114

Production of Cucumber has increased manifold in recent years. Application of which of the following phytohormones has resulted in this increased yield as the hormone is known to produce female flowers in the plants :
(1) Cytokinin
(2) ABA

(3) Gibberellin
(4) Ethylene

Question No: 115

Transposons can be used during which one of the following ?
(1) Polymerase Chain Reaction
(2) Gene Silencing
(3) Autoradiography
(4) Gene sequencing

Question No: 116

What is the net gain of ATP when each molecule of glucose is converted to two molecules of pyruvic acid?
(1) Two
(2) Eight
(3) Four
(4) Six

Question No: 117

Given below are two statements:
Statement I:
Autoimmune disorder is a condition where body defense mechanism recognizes its own cells as foreign bodies.
Statement II:
Rheumatoid arthritis is a condition where body does not attack self cells.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) are correct Statement II and Statement I Both
(2) Both Statement I and Statement II are incorrect
(3) is incorrect Statement II is correct but Statement I
(4) Statement I is incorrect but Statement II is correct

Question No: 118

Hydrocolloid carrageen is obtained from:
(1) Chlorophyceae and Phaeophyceae
(2) Phaeophyceae and Rhodophyceae
(3) Rhodophyceae only
(4) Phaeophyceae only

Question No: 119

The unique mammalian characteristics are:
(1) hairs, tympanic membrane and mammary glands
(2) hairs, pinna and mammary glands
(3) hairs, pinna and indirect development
(4) pinna, monocondylic skull and mammary glands

Question No: 120

The concept of “Omnis cellula-e cellula” regarding cell division was first proposed by
(1) Rudolf Virchow
(2) Theodor Schwann
(3) Schleiden
(4) Aristotle

Question No: 121

Which one of the following plants shows vexillary aestivation and diadelphous stamens?
(1) Solanum nigrum
(2) Colchicum autumnale
(3) Pisum sativum
(4) Allium cepa

Question No: 122

Region of root present just above the root cap is called the region of

1) Elongation
2) Meristematic activity
3) Root hair
4) Maturation

Question No: 123

Which of the following statements is not true?

(1) Sweet potato and potato is an example of analogy

(2) Homology indicates common ancestry

(3) Flippers of penguins and dolphins are a pair of homologous organs

(4) Analogous structures are a result of convergent evolution

Question No: 124

Which one of the following plants shows vexillary aestivation and diadelphous stamens?

(1) Solanum nigrum

(2) Colchicum autumnale

(3) Pisum sativum

(4) Allium cepa

Question No: 125

"Girdling Experiment" was performed by Plant Physiologists to identify the plant tissue through which:

(1) for both water and food transportation

(2) osmosis is observed

(3) water is transported

(4) food is transported

Question No: 126

Given below are two statements:

Statement I: Electrostatic precipitator is most widely used in thermal power plant.

Statement II: Electrostatic precipitator in thermal power plant removes ionising radiations.

In the light of the above statements, choose the most appropriate answer from the options given below:

(1) Both Statement I and Statement II are correct.

(2) Both Statement I and Statement II are incorrect.

(3) Statement I is correct but Statement II is incorrect.

(4) Statement I is incorrect but Statement II is correct.

Question No: 127

Match the plant with the kind of life cycle it exhibits:

	List-I		List-II
(a)	*Spirogyra*	(i)	Dominant diploid sporophyte vascular plant, with highly reduced male or female gametophyte
(b)	Fern	(ii)	Dominant haploid free-living gametophyte
(c)	*Funaria*	(iii)	Dominant diploid sporophyte alternating with reduced gametophyte called prothallus
(d)	*Cycas*	(iv)	Dominant haploid leafy gametophyte alternating with partially dependent multicellular sporophyte

Choose the correct answer from the options given below :

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

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

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

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

Question No: 128

The process of translation of mRNA to proteins begins as soon as :

(1) The small subunit of ribosome encounters mRNA

(2) The larger subunit of ribosome encounters mRNA

(3) Both the subunits join together to bind with mRNA

(4) The tRNA is activated and the larger subunit of ribosome encounters mRNA

Question No: 129

Which of the following is a correct match for disease and its symptoms?

(1) Tetany - High Ca^{2+} level causing rapid spasms.

(2) Myasthenia gravis - Genetic disorder resulting in weakening and paralysis of skeletal muscle

(3) Muscular dystrophy - An auto immune disorder causing progressive degeneration of skeletal muscle

(4) Arthritis - Inflammed joints

Question No: 130

Which of the following statements are correct about Klinefelter's Syndrome?

A. This disorder was first described by Langdon Down (1866).

B. Such an individual has overall masculine development. However, the feminine developement is also expressed.

C. The affected individual is short statured.

D. Physical, psychomotor and mental development is retarded.

E. Such individuals are sterile.

Choose the correct answer from the options given below:

(1) A and E only

(2) A and B only

(3) C and D only

(4) B and E only

Question No: 131

Abaxial surface of the leaf generally bears

1) Less stomata than adaxial epidermis
2) More stomata than adaxial epidermis
3) Equal stomata than adaxial epidermis
4) Hairs to absorb the minerals

Question No: 132

Statements related to human Insulin are given below.

Which statement(s) is/are correct about genetically engineered Insulin?

(a) Pro-hormone insulin contain extra stretch of C-peptide

(b) A-peptide and B-peptide chains of insulin were produced separately in E.coli, extracted and combined by creating disulphide bond between them.

(c) Insulin used for treating Diabetes was extracted from Cattles and Pigs.

(d) Pro-hormone Insulin needs to be processed for converting into a mature and functional hormone.

(e) Some patients develop allergic reactions to the foreign insulin.

Choose the most appropriate answer from the options given below:

(1) (a), (b) and (d) only

(2) (b) only

(3) (c) and (d) only

(4) (c), (d) and (e) only

Question No: 133

Select the correct group/set of Australian Marsupials exhibiting adaptive radiation.

(1) Tasmanian wolf, Bobcat, Marsupial mole

(2) Numbat, Spotted cuscus, Flying phalanger

(3) Mole, Flying squirrel, Tasmanian tiger cat

(4) Lemur, Anteater, Wolf

Question No: 134

Which of the following functions is not performed by secretions from salivary glands?

(1) Digestion of complex carbohydrates

(2) Lubrication of oral cavity

(3) Digestion of disaccharides

(4) Control bacterial population in mouth

Question No: 135

Identify the microorganism which is responsible for the production of an immunosuppressive molecule cyclosporin A :

(1) Streptococcus cerevisiae

(2) Trichoderma polysporum

(3) Clostridium butylicum

(4) Aspergillus niger

Question No: 136

Identify the pair of heterosporous pteridophytes among the following :

(1) Selaginella and Salvinia

(2) Psilotum and Salvinia

(3) Equisetum and Salvinia

(4) Lycopodium and Selaginella

Question No: 137

A characteristic feature of ovary of Brassica campestris is

1) Presence of replum
2) Axile placentation
3) Epigynous
4) Multilocular nature

Question No: 138

Detritivores breakdown detritus into smaller particles. This process is called:

(1) Humification

(2) Decomposition

(3) Catabolism

(4) Fragmentation

Question No: 139

Given below are two statements : One is labelled as Assertion **A** and the other is labelled as Reason **R** :

Assertion A : ATP is used at two steps in glycolysis.

Reason R : First ATP is used in converting glucose into glucose-6-phosphate and second ATP is used in conversion of fructose-6-phosphate into fructose-1, 6-diphosphate.

In the light of the above statements, choose the correct answer from the options given below :

(1) Both **A** and **R** are true and **R** is the correct explanation of **A**.

(2) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.

(3) **A** is true but **R** is false.

(4) A is false but **R** is true.

Question No: 140

Which of the following statements is/are true?

I.The apoplastic movement of water occurs exclusively through the cell wall without crossing any membranes.

II.Solutes present in a cell (or in any solution) increase the free energy of water or water potential.

III.The symplastic movement occurs from cell to cell through the plasmodesmata.

IV.Membrane permeability depends on the membrane composition, as well the chemical nature of the solute.

1) I and II only
2) II and IV only
3) I, III and IV only
4) I, II and IV only

Question No: 141

In C_4 - plants, the carbon dioxide fixation accurs in

1) Guard cells
2) Spongy cells
3) Palisade cells
4) Bundle sheath cells

Question No: 142

Which of the following occurs due to the presence of autosome linked dominant trait ?

(1) Haemophilia

(2) Thalessemia

(3) Sickle cell anaemia
(4) Myotonic dystrophy

Question No: 143

Given below are two statements:
Statement I: In prokaryotes, the positively charged DNA is held with some negatively charged proteins in a region called nucleoid.Statement II: In eukaryotes, the negatively charged DNA is wrapped around the positively charged histone octamer to form nucleosome.
In the light of the above statements, choose the correct answer from the options given below:
(1) Both Statement I and Statement II are false.
(2) Statement I is correct but Statement II is false.
(3) Statement I is incorrect but Statement II is true.
(4) Both Statement I and Statement II are true.

Question No: 144

Movement and accumulation of ions across a membrane against their concentration gradient can be explained by
(1) Passive Transport
(2) Active Transport
(3) Osmosis
(4) Facilitated Diffusion

Question No: 145

Detritivores breakdown detritus into smaller particles. This process is called:
(1) Fragmentation
(2) Humification
(3) Decomposition
(4) Catabolism

Question No: 146

Somatic cells of gorilla, chimpanzee and orangutan have
1) 44 chromosomes 2) 42 chromosomes 3) 46 chromosomes 4) 48 chromosomes

Question No: 147

Tegmina in cockroach, arises from
(1) Prothorax and Mesothorax
(2) Prothorax
(3) Mesothorax
(4) Metathorax

Question No: 148

Ten E.coli cells with $^{15}\mathrm{N}$ - dsDNA are incubated in medium containing $^{14}\mathrm{N}$ nucleotide. After 60 minutes, how many E.coli cells will have DNA totally free from $^{15}\mathrm{N}$?
(1) 20 cells
(2) 40 cells
(3) 60 cells
(4) 80 cells

Question No: 149

Select the correct option.
(1) 8th, 9th and 10th pairs of ribs articulate directly with the sternum.
(2) 11th and 12th pairs of ribs are connected to the sternum with the help of hyaline cartilage.
(3) Each rib is a flat thin bone and all the ribs are connected dorsally to the thoracic vertebrae and ventrally to the sternum.
(4) There are seven pairs of vertebrosternal, three pairs of vertebrochondral and two pairs of vertebral ribs.

Question No: 150

Metamorphosis in cockroach is regulated by

1) Corpora cardiaca 2) Brain 3) Thyroid 4) Corpora allata

Question No: 151

Match List I with List II.

	List I		List II
A.	Ringworm	I.	*Haemophilus influenzae*
B.	Filariasis	II.	*Trichophyton*
C.	Malaria	III.	*Wuchereria bancrofti*
D.	Pneumonia	IV.	*Plasmodium vivax*

Choose the correct answer from the options given below:

(1) A-II, B-III, C-IV, D-I

(2) A-II, B-III, C-I, D-IV

(3) A-III, B-II, C-I, D-IV

(4) A-III, B-II, C-IV, D-I

Question No: 152

During embryogenesis the zygote undergoes

1) Cell division (mitosis) 2) Cell division (meiosis)

3) Cell differentiation 4) (1) followed by (3)

Question No: 153

Match List-I with List-II with respect to methods of Contraception and their respective actions.

	List-I		List-II
(a)	Diaphragms	(i)	Inhibit ovulation and Implantation
(b)	Contraceptive Pills	(ii)	Increase phagocytosis of sperm within Uterus
(c)	Intra Uterine Devices	(iii)	Absence of Menstrual cycle and ovulation following parturition
(d)	Lactational Amenorrhea	(iv)	They cover the cervix blocking the entry of sperms

Choose the correct answer from the options given below:

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

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

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

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

Question No: 154

Self-fertilisation occurs in the

1) Bisexual flower 2) Unisexual flower 3) Both (1) and (2) 4) Monoecious flower

Question No: 155

Who first proved that virus was made up of a nucleic acid and protein?

1) Griffith 2) WM Stanley

3) Dr Salvador Huria and Dr Max Delbruk 4) Dr NW Pjrie and Dr FC Bawden

Question No: 156

Select the correct statements.

A. Tetrad formation is seen during Leptotene.

B. During Anaphase, the centromeres split and chromatids separate.

C. Terminalization takes place during Pachytene.

D. Nucleolus, Golgi complex and ER are reformed during Telophase.

E. Crossing over takes place between sister chromatids of homologous chromosome.

Choose the correct answer from the options given below:

(1) B and E only

(2) A and C only

(3) B and D only

(4) A, C and E only

Question No: 157

The parts of human brain that helps in regulation of sexual behaviour, expression of excitement, pleasure, rage, fear etc. are:

(1) Corpora quadrigemina and hippocampus

(2) Brain stem and epithalamus
(3) Corpus callosum and thalamus
(4) Limbic system and hypothalamus

Question No: 158

Select the correct group/set of Australian Marsupials exhibiting adaptive radiation.
(1) Mole, Flying squirrel, Tasmanian tiger cat
(2) Lemur, Anteater, Wolf
(3) Tasmanian wolf, Bobcat, Marsupial mole
(4) Numbat, Spotted cuscus, Flying phalanger

Question No: 159

Match List-I with List-II

	List-I		List-II
(a)	Bronchioles	(i)	Dense Regular Connective Tissue
(b)	Goblet Cell	(ii)	Loose Connective Tissue
(c)	Tendons	(iii)	Glandular Tissue
(d)	Adipose Tissue	(iv)	Ciliated Epithelium

Choose the correct answer from the options given below:
(1) (a) - (iii), (b) - (iv), (c) - (ii), (d) - (i)
(2) (a) - (iv), (b) - (iii), (c) - (i), (d) - (ii)
(3) (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)
(4) (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)

Question No: 160

The largest RBCs have been seen in
1) Elephant 2) Whale 3) Amphibians 4) Man

Question No: 161

Once the undigested and unabsorbed substances enter the caecum, their backflow is prevented by
(1) lleo-caecal valve
(2) Gastro-oesophageal sphincter
(3) Pyloric sphincter
(4) Sphincter of Oddi

Question No: 162

The appearance of recombination nodules on homologous chromosomes during meiosis characterizes :
(1) Synaptonemal complex
(2) Bivalent
(3) Sites at which crossing over occurs
(4) Terminalization

Question No: 163

Which one is a true statement regarding DNA polymerase used in PCR?
1) It is used to ligate introduced DNA in recipient cell
2) It serves as a selectable marker
3) It is isolated from a virus
4) It remains active at high temperature

Question No: 164

The green revolution succeeded in increasing the yield of crops mainly due to the use of
I. improved varieties of the crops
II. agro-chemicals
III. better management practices
Choose the correct option
1) I and II 2) I and III 3) II and III 4) I, II and III

Question No: 165

In old trees the greater part of secondary xylem is dark brown and resistant to insect attack due to:

(a) secretion of secondary metabolities and their deposition in the lumen of vessels.

(b) deposition of organic compounds like tannins and resins in the central layers of stem.

(c) deposition of suberin and aromatic substances in the outer layer of stem.

(d) deposition of tannins, gum, resin and aromatic substances in the peripheral layers of stem.

(e) presence of parenchyma cells, functionally active xylem elements and essential oils.

Choose the correct answer from the options given below:

(1) (a) and (b) Only

(2) (c) and (d) Only

(3) (d) and (e) Only

(4) (b) and (d) Only

Question No: 166

Given below are two statements:

Statement I: Decomposition is a process in which the detritus is degraded into simpler substances by microbes.

Statement II: Decomposition is faster if the detritus is rich in lignin and chitin.

In the light of the above statements, choose the correct answer from the options given below:

(1) Statement I is incorrect but Statement II is correct

(2) Both Statement I and Statement II are correct

(3) Both Statement I and Statement II are incorrect

(4) Statement I is correct but Statement II is incorrect

Question No: 167

Match List I with List II :

	List I		List II
A.	Cohesion	I.	More attraction in liquid phase
B.	Adhesion	II.	Mutual attraction among water molecules
C.	Surface tension	III.	Water loss in liquid phase
D.	Guttation	IV.	Attraction towards polar surfaces

Choose the correct answer from the options given below :

(1) $A-IV, B-III, C-II, D-I$

(2) $A-III, B-I, C-IV, D-II$

(3) $A-II, B-I, C-IV, D-III$

(4) $A-II, B-IV, C-I, D-III$

Question No: 168

Hydrocolloid carrageen is obtained from:

(1) Phaeophyceae and Rhodophyceae

(2) Rhodophyceae only

(3) Phaeophyceae only

(4) Chlorophyceae and Phaeophyceae

Question No: 169

Which of the following combinations is required for chemiosmosis?

(1) Membrane, proton pump, proton gradient, NADP synthase

(2) Proton pump, electron gradient, ATP synthase

(3) Proton pump, electron gradient, NADP synthase

(4) Membrane, proton pump, proton gradient, ATP synthase

Question No: 170

Match List I with List II.

	List I		List II
A.	Vasectomy	I.	Oral method
B.	Coitus interruptus	II.	Barrier method
C.	Cervical caps	III.	Surgical method
D.	Saheli	IV.	Natural method

Choose the correct answer from the options given below:

(1) A-III, B-I, C-IV, D-II
(2) A-III, B-IV, C-II, D-I
(3) A-II, B-III, C-I, D-IV
(4) A-IV, B-II, C-I, D-III

Question No: 171

Which one of the following does not belong to kingdom-Monera?

1) Mycoplasma 2) Achaebacteria 3) Slime mould 4) Eubacteria

Question No: 172

Given below are two statements :
Statement I: Low temperature preserves the enzyme in a temporarily inactive state whereas high temperature destroys enzymatic activity because proteins are denatured by heat.
Statement II: When the inhibitor closely resembles the substrate in its molecular structure and inhibits the activity of the enzyme, it is known as competitive inhibitor.
In the light of the above statements, choose the correct answer from the options given below :
(1) Both Statement I and Statement II are false.
(2) Statement I is true but Statement II is flase.
(3) Statement I is false but Statement II is true.
(4) Both Statement I and Statement II are true.

Question No: 173

Given below are two statements : One is labelled as Assertion **A** and the other is labelled as Reason R :
Assertion A : ATP is used at two steps in glycolysis.
Reason R : First ATP is used in converting glucose into glucose-6-phosphate and second ATP is used in conversion of fructose-6-phosphate into fructose-1, 6-diphosphate.
In the light of the above statements, choose the correct answer from the options given below :
(1) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.
(2) **A** is true but **R** is false.
(3) **A** is false but **R** is true.
(4) Both **A** and **R** are true and **R** is the correct explanation of **A**.

Question No: 174

Given below are two statements:
Statement I:
Cleistogamous flowers are invariably autogamous
Statement II :
Cleistogamy is disadvantageous as there is no chance for cross pollination
In the light of the above statements, choose the correct answer from the options given below :
(1) Statement I is correct but Statement II is incorrect
(2) Statement I is incorrect but Statement II is correct
(3) Both Statement I and Statement II are correct
(4) Both Statement I and Statement II are incorrect

Question No: 175

Given below are two statements : One is labelled as Assertion A and the other is labelled as Reason R :
Assertion A : ATP is used at two steps in glycolysis.
Reason **R** : First ATP is used in converting glucose into glucose-6-phosphate and second ATP is used in conversion of fructose-6-phosphate into fructose-1, 6-diphosphate.
In the light of the above statements, choose the correct answer from the options given below :
(1) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.
(2) **A** is true but **R** is false.
(3) **A** is false but **R** is true.
(4) Both **A** and **R** are true and **R** is the correct explanation of **A**.

Question No: 176

Best method to increase crop yield is (e.g. wheat)

1) Using tractors
2) Sowing seeds of improved varieties
3) Eradication of weeds
4) Reduce ration holders

Question No: 177

Which one of the following produces nitrogen fixing nodules on the roots of Alnus?

(1) Frankia
(2) Rhodospirillum
(3) Beijerinckia
(4) Rhizobium

Question No: 178

A dehydration reaction links two glucose molecules to product maltose. If the formula for glucose is $C_6H_{12}O_6$ then what is the formula for maltose?

(1) $C_{12}H_{24}O_{12}$
(2) $C_{12}H_{22}O_{11}$
(3) $C_{12}H_{24}O_{11}$
(4) $C_{12}H_{20}O_{10}$

Question No: 179

Which of the following is a correct statement?

(1) Mycoplasma have DNA, ribosome and cell wall.
(2) Cyanobacteria are a group of autotrophic organisms classified under kingdom Monera.
(3) Bacteria are exclusively heterotrophic organisms.
(4) Slime moulds are saprophytic organisms classified under Kingdom Monera.

Question No: 180

What is the role of large bundle sheath cells found around the vascular bundles in C_4 plants?

(1) To provide the site for photorespiratory pathway
(2) To increase the number of chloroplast for the operation of Calvin cycle
(3) To enable the plant to tolerate high temperature
(4) To protect the vascular tissue from high light intensity

Question No: 181

Identify the asexual reproductive structure associated with Penicillium :

(1) Buds
(2) Zoospores
(3) Conidia
(4) Gemmules

Question No: 182

Which of the following is characteristic feature of cockroach regarding sexual dimorphism?

(1) Dark brown body colour and anal cerci
(2) Presence of anal styles
(3) Presence of sclerites
(4) Presence of anal cerci

Question No: 183

Identify the microorganism which is responsible for the production of an immunosuppressive molecule cyclosporin A :

(1) Clostridium butylicum
(2) Aspergillus niger
(3) Streptococcus cerevisiae
(4) Trichoderma polysporum

Question No: 184

In the taxonomic categories which hierarchical arrangement in ascending order is correct in case of animals?

(1) Kingdom, Phylum, Class, Order, Family, Genus, Species
(2) Kingdom, Class, Phylum, Family, Order, Genus, Species
(3) Kingdom, Order, Class, Phylum, Family, Genus, Species
(4) Kingdom, Order, Phylum, Class, Family, Genus, Species

Question No: 185

Match List I with List II.

	List I		List II
A.	Gene 'a'	I.	β-galactosidase
B.	Gene 'y'	II.	Transacetylase
C.	Gene 'i'	III.	Permease
D.	Gene 'z'	IV.	Repressor protein

Choose the correct answer from the options given below:
(1) A-II, B-I, C-IV, D-III
(2) A-II, B-III, C-IV, D-I
(3) A-III, B-IV, C-I, D-II
(4) A-III, B-I, C-IV, D-II

Question No: 186

Which of the following transgenic animals are used in testing safety of polio vaccine before they are used on human?
1) Transgenic cow 2) Transgenic monkey 3) Transgenic mice 4) Transgenic sheep

Question No: 187

Natural selection where more individuals acquire specific character value other than the mean character value, leads to
(1) Random change
(2) Stabilising change
(3) Directional change
(4) Disruptive change

Question No: 188

Given below are two statements:
Statement I: Decomposition is a process in which the detritus is degraded into simpler substances by microbes.
Statement II: Decomposition is faster if the detritus is rich in lignin and chitin.
In the light of the above statements, choose the correct answer from the options given below:
(1) Both Statement I and Statement II are correct
(2) Both Statement I and Statement II are incorrect
(3) Statement I is correct but Statement II is incorrect
(4) Statement I is incorrect but Statement II is correct

Question No: 189

Choose the correct statements
1) Sebaceous gland eliminate sterols, hydrocarbons, waxes
2) Secretion of sebaceous gland provide oily protective covering of skin
3) Small amount of nitrogenous wastes eliminated through saliva
4) All of the above

Question No: 190

Chipko movement was successfully launched by
1) SL Bahuguna 2) HL Bahuguna 3) KL Bahuguna 4) Amrita Devi

Question No: 191

Which of the following combinations is required for chemiosmosis?
(1) Proton pump, electron gradient, NADP synthase
(2) Membrane, proton pump, proton gradient, ATP synthase
(3) Membrane, proton pump, proton gradient, NADP synthase
(4) Proton pump, electron gradient, ATP synthase

Question No: 192

A wave of action potential is termed as

1) Sensory impulse 2) Nerve impulse 3) Activation impulse 4) Motor impulse

Question No: 193

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R). Assertion (A) : Mendel's law of Independent assortment does not hold good for the genes that are located closely on the same chromosome.

Reason (R) : Closely located genes assort independently.

In the light of the above statements, choose the correct answer from the options given below:

(1) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(2) (A) is correct but (R) is not correct

(3) (A) is not correct but (R) is correct

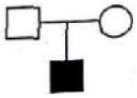
(4) Both (A) and (R) are correct and (R) is the correct explanation of (A)

Question No: 194

Which one of the following symbols represents mating between relatives in human pedigree analysis?

(1) 

(2) 

(3) 

(4) 

Question No: 195

Part of ear where sound is transduced is

1) Tympanic membrane 2) Malleus, incus and stapes

3) Semi-circular canal 4) Cochlea

Question No: 196

Arrange the given steps of expiration in the sequence of event occurring first

I. Relaxation of the diaphragm and sternum

II. Reduction of the pulmonary volume

III. Expulsion of air from the lungs

IV. Increase in intra pulmonary pressure

Choose the correct option

1) I → II → III → IV 2) I → II → IV → III 3) IV → III → II → I 4) IV → II → III → I

Question No: 197

In plants the cells in the interior parts are

1) Dead and for mechanical support 2) Live and for various purpose

3) Both (1) and (2) 4) None of the above

Question No: 198

Among 'The Evil Quartet', which one is considered the most important cause driving extinction of species?

(1) Habitat loss and fragmentation

(2) Over exploitation for economic gain

(3) Alien species invasions

(4) Co-extinctions

Question No: 199

Identify the microorganism which is responsible for the production of an immunosuppressive molecule cyclosporin A :

(1) Aspergillus niger

(2) Streptococcus cerevisiae

(3) Trichoderma polysporum

(4) Clostridium butylicum

Question No: 200
Radial symmetry is NOT found in adults of phylum
(1) Ctenophora
(2) Hemichordata
(3) Coelenterata
(4) Echinodermata