

# All India Institute of Speech and Hearing

## Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

<b>Question Paper Name :</b>	BASLP PCB 5th Oct 2020 Shift1
<b>Subject Name :</b>	BASLP - PCB
<b>Creation Date :</b>	2020-10-05 12:36:36
<b>Duration :</b>	150
<b>Number of Questions :</b>	150
<b>Total Marks :</b>	150
<b>Display Marks:</b>	No
<b>Calculator :</b>	None
<b>Magnifying Glass Required? :</b>	No
<b>Ruler Required? :</b>	No
<b>Eraser Required? :</b>	No
<b>Scratch Pad Required? :</b>	No
<b>Rough Sketch/Notepad Required? :</b>	No
<b>Protractor Required? :</b>	No
<b>Show Watermark on Console? :</b>	Yes
<b>Highlighter :</b>	No
<b>Auto Save on Console? :</b>	Yes

## **BASLP - PCB**

**Group Number :** 1

**Group Id :** <https://exams.freshersnow.com/category/entrance-exam-question-papers/> 23079617

<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	150
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	150
<b>Is this Group for Examiner? :</b>	No

## PHYSICS

<b>Section Id :</b>	23079633
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	50
<b>Number of Questions to be attempted :</b>	50
<b>Section Marks :</b>	50
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	23079633
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 2307962001 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Two objects X and Y are projected with the same speed so that the ratio of their maximum heights reached is 3:1. If the speed of X is tripled without changing other parameters, the ratio of the horizontal range attained by X and B is

**Options :**

1. ✖ 3:1

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2. ✓ 9:1

3. ✗ 1:3

4. ✗ 1:9

**Question Number : 2 Question Id : 2307962002 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

If  $\gamma$  is the ratio of specific heats of a perfect gas, then the number of degree of freedom of a molecule of the gas is

**Options :**

1. ✓  $\frac{2}{\gamma-1}$

2. ✗  $\frac{\gamma-1}{2}$

3. ✗  $\frac{2\gamma}{\gamma-1}$

4. ✗  $\frac{\gamma-1}{2\gamma}$

**Question Number : 3 Question Id : 2307962003 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In which process the internal energy of the system remains constant?

**Options :**

1. ✗ adiabatic

2. ✓ isothermal

3. ✗ isochoric

4. ✖ isobaric

**Question Number : 4 Question Id : 2307962004 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

What is the ratio of the potential energy of a simple harmonic oscillator when the particle is at its endpoint to the particle is halfway to its endpoint?

**Options :**

1. ✖ 1:4

2. ✖ 2:1

3. ✔ 4:1

4. ✖ 1:2

**Question Number : 5 Question Id : 2307962005 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

What are the number of nodes and antinodes when a sonometer is vibrating in its 2nd overtone?

**Options :**

1. ✖ 2,3

2. ✖ 3,2

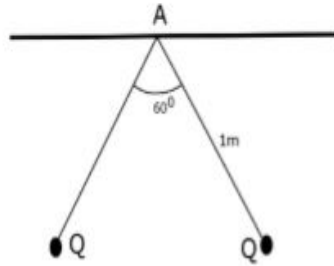
3. ✔ 4,3

4. ✖ 3,4

**Question Number : 6 Question Id : 2307962006 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Two small spherical balls each carrying a charge  $Q = 20 \mu\text{C}$  are suspended by two insulated threads of equal length 1 m each, from a point from the rigid support. It is found that in equilibrium, the threads are separated by an angle  $60^\circ$  between them, as shown in the diagram. The tension in the thread is



**Options :**

1. ✓ 7.2 N
2. ✗ 3.6 N
3. ✗ 1.8 N
4. ✗ 14.4 N

**Question Number : 7 Question Id : 2307962007 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A hollow metal sphere of radius 10 cm is charged such that the potential on its surface is 20 V. The electric field at the centre of the sphere will be

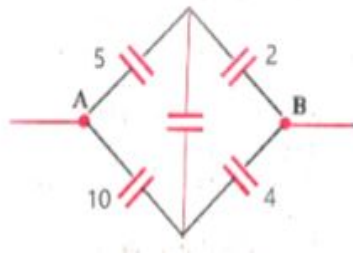
**Options :**

1. ✗ 20 V/m
2. ✗ 200 V/m
3. ✗ 10 V/m
4. ✓ zero

**Question Number : 8 Question Id : 2307962008 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

What is the effective capacitance between A and B in the figure shown below?  
( all capacitances in  $\mu\text{F}$ )



Options :

1. ✘  $\frac{21}{20} \mu\text{F}$

2. ✔  $\frac{30}{7} \mu\text{F}$

3. ✘  $\frac{20}{21} \mu\text{F}$

4. ✘  $\frac{7}{20} \mu\text{F}$

Question Number : 9 Question Id : 2307962009 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following are not electromagnetic waves?

Options :

1. ✘ UV-rays

2. ✔  $\beta$ -rays

3. ✘ gamma-rays

4. ✘ x-rays

Question Number : 10 Question Id : 2307962010 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The electric field associated with an e.m. wave in vacuum is

$$\vec{E} = \hat{i} 20 \cos(kz - 3 \times 10^8 t). \text{ The value of } k \text{ is}$$

Options :

1. ✘  $2 \text{ m}^{-1}$

2. ✘  $3 \text{ m}^{-1}$

3. ✔  $1 \text{ m}^{-1}$

4. ✘  $20 \text{ m}^{-1}$

Question Number : 11 Question Id : 2307962011 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In Young's double-slit experiment, the fringe width is 1.33 mm. If the entire arrangement is placed in water (refractive index=1.33). What is the width of the new fringe?

Options :

1. ✘ 1.77 mm

2. ✘ 0.57 mm

3. ✘ 4.03 mm

4. ✔ 1 mm

Question Number : 12 Question Id : 2307962012 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Light of wavelength 500 nm is incident on a slit of width 0.5 mm. The width of the central bright

line on the screen is 1 cm. What is the distance of the screen?

**Options :**

1. ✓ 5 m
2. ✗ 10 m
3. ✗ 2.5 m
4. ✗ 50 m

**Question Number : 13 Question Id : 2307962013 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

What is the minimum length of the mirror required to visualize the complete image of the body of a person of height 'x'?

**Options :**

1. ✗  $x/4$
2. ✗  $2x$
3. ✗  $x$
4. ✓  $x/2$

**Question Number : 14 Question Id : 2307962014 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The diameter of a plano-convex lens is 8 cm and thickness at the centre is 4 mm. If the speed of light in the material of the lens is  $1.5 \times 10^8$  m/s the focal length of the lens is

**Options :**

1. ✓ 20 cm
2. ✗ 30 cm
3. ✗ 40 cm
4. ✗ 60 cm

**Question Number : 15 Question Id : 2307962015 Question Type : MCQ Option Shuffling : No Is**



**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The ratio of shortest wavelength to longest wavelength in Lyman series hydrogen spectra is

**Options :**

1. ✘  $\frac{9}{4}$

2. ✘  $\frac{11}{4}$

3. ✘  $\frac{1}{4}$

4. ✔  $\frac{4}{3}$

**Question Number : 16 Question Id : 2307962016 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Two nuclei have their mass number in ratio of 1:5. The ratio of their nuclear densities would be

**Options :**

1. ✘ 1:5

2. ✘ 5:1

3. ✔ 1:1

4. ✘ 1:25

**Question Number : 17 Question Id : 2307962017 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A uniform rope of mass 0.1 kg and length 2.45 m hangs from a rigid support. The time taken by  
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the transverse wave formed in the rope to travel through the full length of the rope is

**Options :**

1. ✖ 0.5 s
2. ✖ 1.6 s
3. ✖ 1.2 s
4. ✔ 1 s

**Question Number : 18 Question Id : 2307962018 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The polariser and analyser are inclined to each other at  $60^\circ$ . If  $\frac{I}{2}$  is the intensity of the polarised light emergent from analyser, then the intensity of the unpolarised light incident on the polariser is

**Options :**

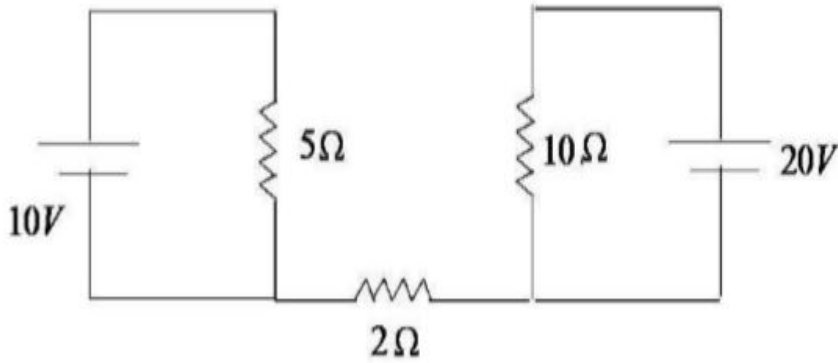
1. ✖ 8I
2. ✔ 4I
3. ✖ 2I
4. ✖ I

**Question Number : 19 Question Id : 2307962019 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Find out the value of current through  $2\Omega$  resistance for the given circuit



**Options :**

1. ✓ 0
2. ✗ 4A
3. ✗ 5A
4. ✗ 1A

**Question Number : 20 Question Id : 2307962020 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The resistances of the four arms P,Q,R and S in a Wheatstone's bridge are 10 ohm, 30 ohm, 30 ohm and 90 ohm, respectively. The e.m.f and internal resistance of the cell are 7 volt and 5 ohm respectively. If the galvanometer resistance is 50 ohm, the current drawn from the cell will be

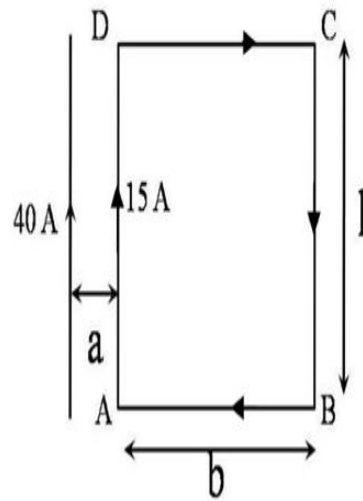
**Options :**

1. ✗ 1.0A
2. ✓ 0.2A
3. ✗ 0.1A
4. ✗ 2.0 A

**Question Number : 21 Question Id : 2307962021 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A long wire carrying a current of 40A as shown in figure. The rectangular loop carries a current of 15A. The resultant force acting on the loop is [assume that  $a = 1\text{cm}$ ,  $b = 80\text{cm}$  and  $l = 30\text{cm}$ ]



Options :

1. ✓  $3.6 \times 10^{-3}$  N  
directed  
towards wire
2. ✗  $3.6 \times 10^{-3}$  N  
directed away  
from wire
3. ✗  $6.4 \times 10^{-3}$  N  
directed  
towards wire
4. ✗  $6.4 \times 10^{-3}$  N  
directed away  
from wire

Question Number : 22 Question Id : 2307962022 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A compass needle makes 10 oscillations per minute in the earth's horizontal field. A bar magnet deflects the needle by  $60^\circ$  from the magnetic meridian. The frequency of oscillation in the deflected position in oscillations per minute is (field due to magnet is perpendicular to  $B_H$ )

Options :

1. ✘  $5\sqrt{2}$

2. ✘  $20\sqrt{2}$

3. ✔  $10\sqrt{2}$

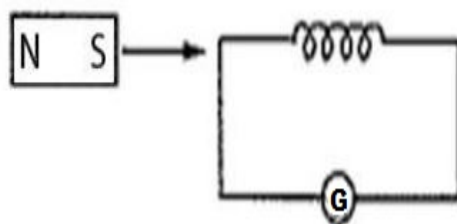
4. ✘ 10

Question Number : 23 Question Id : 2307962023 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

As shown in the figure, a magnet is moved with some speed towards a coil at rest. Due to this induced electromotive force, induced current and induced charge in the coil are  $E$ ,  $I$  and  $Q$  respectively. If the speed of the magnet is doubled, the incorrect statement is



Options :

1. ✘  $E$  increases

2. ✘ I increases
3. ✘ Q remains same
4. ✔ Q increases

Question Number : 24 Question Id : 2307962024 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Power dissipated in an L-C-R series circuit connected to an AC source of emf  $E$  is

Options :

1. ✔ 
$$P = \frac{E^2}{\left[ \sqrt{R^2 + \left[ \omega L - \frac{1}{\omega C} \right]^2} \right]^2} \times R$$

2. ✘ 
$$P = \frac{E^2}{R}$$

3. ✘ 
$$P = \frac{E^2}{(X_L - X_C)}$$

4. ✘ 
$$P = (X_L - X_C) \frac{E^2}{R}$$

Question Number : 25 Question Id : 2307962025 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

An electron (mass  $m$ ) with an initial velocity  $V = V_0 \hat{i}$  is in an electric field

$E = E_0 \hat{j}$  If  $\lambda_0 = \frac{\lambda}{mv_0}$ , its debroglie wave length at time  $t$  is given by

Options :

$$\lambda_0 \sqrt{1 + \frac{e^2 E_0^2 t^2}{m^2 v_0^2}}$$

1. ✘

$$\frac{\lambda_0}{\sqrt{1 + \frac{e^2 E_0^2 t^2}{m^2 v_0^2}}}$$

2. ✔

$$\frac{\lambda_0}{\left(1 + \frac{e^2 E_0^2 t^2}{m^2 v_0^2}\right)}$$

3. ✘

4. ✘  $\lambda_0$

Question Number : 26 Question Id : 2307962026 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In which of the following process the number of protons in the nucleus increases?

Options :

1. ✘  $\alpha - decay$

2. ✔  $\beta^- - decay$

$\beta^+$  – decay

3. ✘

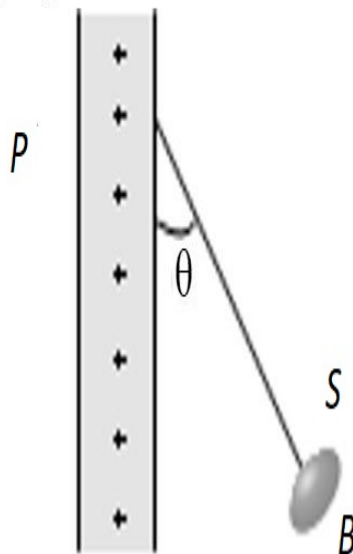
k – capture

4. ✘

Question Number : 27 Question Id : 2307962027 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A charged ball  $B$  hangs from a silk thread  $S$ , which makes an angle  $\theta$  with a large charged conducting sheet  $P$ , as shown in the figure. The surface charge density  $\sigma$  of the sheet is proportional to



Options :

1. ✘  $\sin \theta$

2. ✔  $\tan \theta$

3. ✘  $\cos \theta$



4. ✘  $\cot \theta$

**Question Number : 28 Question Id : 2307962028 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Eight drops of mercury of equal radii possessing equal charges combine to form a big drop. Then the capacitance of bigger drop compared to each individual small drop is

**Options :**

1. ✘ 8 times
2. ✘ 4 times
3. ✔ 2 times
4. ✘ 32 times

**Question Number : 29 Question Id : 2307962029 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The velocity  $v$  (in  $cm/s$ ) of a particle is given in terms of time  $t$  (in  $second$ ) by the relation  $v = at + \frac{b}{t+c}$ ; the dimensions of  $a, b$  and  $c$  are

**Options :**

1. ✘  $a = L^2, b = T, c = LT^2$
2. ✘  $a = LT^2, b = LT, c = L$
3. ✔  $a = LT^{-2}, b = L, c = T$

$$a = L, b = LT, c = T^2$$

4. ✘

**Question Number : 30 Question Id : 2307962030 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

While measuring the acceleration due to gravity by a simple pendulum, a student makes a positive error of 1% in the length of the pendulum and a negative error of 3% in the value of time period. His percentage error in the measurement of  $g$  by the relation  $g = 4\pi^2(l/T^2)$  will be

**Options :**

1. ✘ 2%

2. ✘ 4%

3. ✔ 7%

4. ✘ 10%

**Question Number : 31 Question Id : 2307962031 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A body starts with an initial velocity of  $10\text{ms}^{-1}$  and is moving along a straight line with constant acceleration. When the velocity of the particle is  $50\text{ms}^{-1}$ , the acceleration is reversed in direction. The speed of the particle when it again reaches the starting point is

**Options :**

1. ✔  $70\text{ms}^{-1}$

2. ✘  $60ms^{-1}$

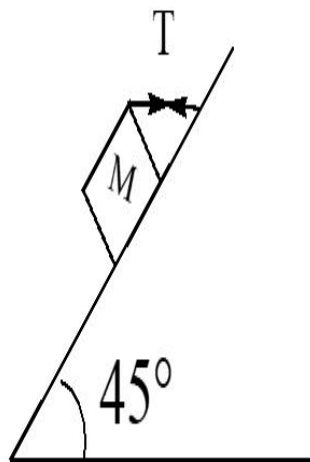
3. ✘  $10ms^{-1}$

4. ✘  $50ms^{-1}$

Question Number : 32 Question Id : 2307962032 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A block of mass 15 kg is resting on a rough inclined plane as shown in fig. The block is tied by a horizontal string which has a tension of 50 N. The coefficient of friction between the surfaces of contact is



Options :

1. ✔  $1/2$

2. ✘  $2/3$

3. ✘  $3/4$

4. ✘  $1/4$

Question Number : 33 Question Id : 2307962033 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

**Correct Marks : 1 Wrong Marks : 0**

A 2 kg brick of dimension 5 cm x 2.5 cm x 1.5 cm is lying on the largest base. It is now made to stand with length vertical, then the amount of work done is

**Options :**

1. ✓ 0.35 J
2. ✗ 5 J
3. ✗ 24 J
4. ✗ 288 J

**Question Number : 34 Question Id : 2307962034 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A stationary wheel starts rotating about its own axis at constant angular acceleration. If the wheel completes 50 rotations in first 2 seconds, then the number of rotations made by it in next two seconds is

**Options :**

1. ✗ 75
2. ✗ 100
3. ✗ 125
4. ✓ 150

**Question Number : 35 Question Id : 2307962035 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

To a person, going eastward in a car with a velocity of  $25 \text{ km/hr}$ , a train appears to move towards north with a velocity of  $25\sqrt{3} \text{ km/hr}$ . The actual velocity of the train will be

**Options :**

1. ✓  $25 \text{ km/hr}$

2. ✘  $50 \text{ km/hr}$

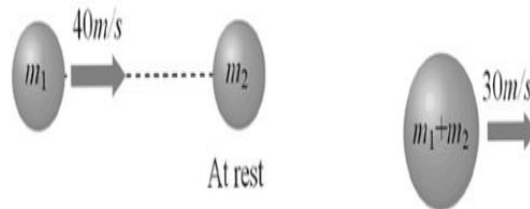
3. ✘  $5 \text{ km/hr}$

4. ✘  $5\sqrt{3} \text{ km/hr}$

Question Number : 36 Question Id : 2307962036 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A body of mass  $m_1$  moving with uniform velocity of  $40 \text{ m/s}$  collides with another mass  $m_2$  at rest and then the two together begin to move with uniform velocity of  $30 \text{ m/s}$ . The ratio of their masses  $\frac{m_1}{m_2}$  is



Options :

1. ✘ 0.75

2. ✘ 1.33

3. ✔ 3

4. ✘ 4

Question Number : 37 Question Id : 2307962037 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A body of mass  $m$  accelerates uniformly from rest to  $v_1$  in time  $t_1$ . As a function of time  $t$ , the instantaneous power delivered to the body is

Options :

1. ✘  $\frac{mv_1 t}{t_1}$

2. ✘  $\frac{mv_1^2 t}{t_1}$

3. ✘  $\frac{mv_1 t^2}{t_1}$

4. ✔  $\frac{mv_1^2 t}{t_1^2}$

Question Number : 38 Question Id : 2307962038 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If a planet consists of a satellite whose mass and radius were both half that of the earth, the acceleration due to gravity at its surface would be

( $g$  on earth =  $9.8 \text{ m/sec}^2$ )

Options :

1. ✘  $4.9 \text{ m} / \text{s}^2$

2. ✘  $8.9 \text{ m} / \text{s}^2$

3. ✓  $19.6 m / s^2$

4. ✗  $29.4 m / s^2$

**Question Number : 39 Question Id : 2307962039 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Two wires A and B of same length, same area of cross-section having the same Young's modulus are heated to the same range of temperature. If the coefficient of linear expansion of A is  $3/2$  times of that of wire B. The ratio of the forces produced in two wires will be

**Options :**

1. ✗  $2/3$

2. ✗  $9/4$

3. ✗  $4/9$

4. ✓  $3/2$

**Question Number : 40 Question Id : 2307962040 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

If the work done in blowing a bubble of volume  $V$  is  $W$ , then the work done in blowing the bubble of volume  $2V$  from the same soap solution will be

**Options :**

1. ✗  $W/2$

2. ✗  $\sqrt{2} W$

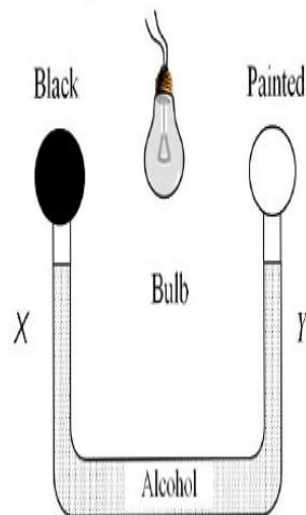
3. ✗  $\sqrt[3]{2} W$

4. ✓  $\sqrt[3]{4} W$

Question Number : 41 Question Id : 2307962041 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The following figure shows two air-filled bulbs connected by a U-tube partly filled with alcohol. What happens to the levels of alcohol in the limbs  $X$  and  $Y$  when an electric bulb placed midway between the bulbs is lighted



Options :

1. ✓ The level of alcohol in limb  $X$  falls while that in limb  $Y$  rises
2. ✗ The level of alcohol in limb  $X$  rises while that in limb  $Y$  falls
3. ✗ The level of alcohol falls in both limbs
4. ✗ There is no change in the levels of alcohol in the two limbs

Question Number : 42 Question Id : 2307962042 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A person is spinning with his hands outstretched at the rate of  $4 \text{ rads}^{-1}$ . When he brings his hands close to the body, he spins at the rate of  $16 \text{ rads}^{-1}$ .

The ratio of M.I in the two cases successively is



**Options :**

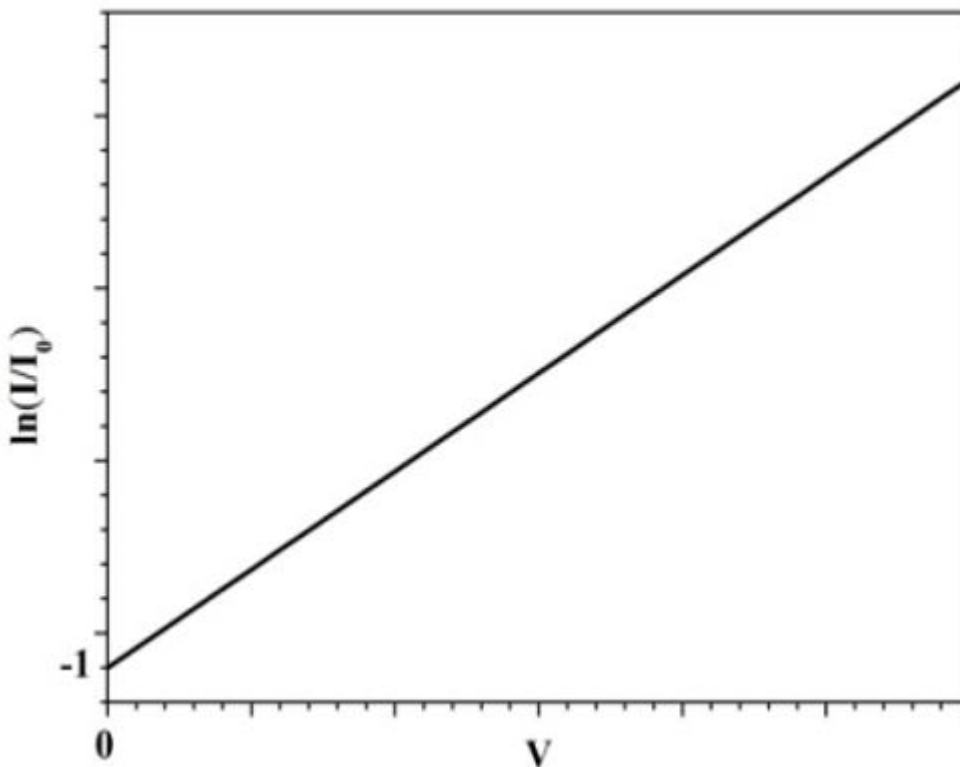
- 1. ✓ 4:1
- 2. ✗ 1:14
- 3. ✗ 16:1
- 4. ✗ 2:1

**Question Number : 43 Question Id : 2307962043 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

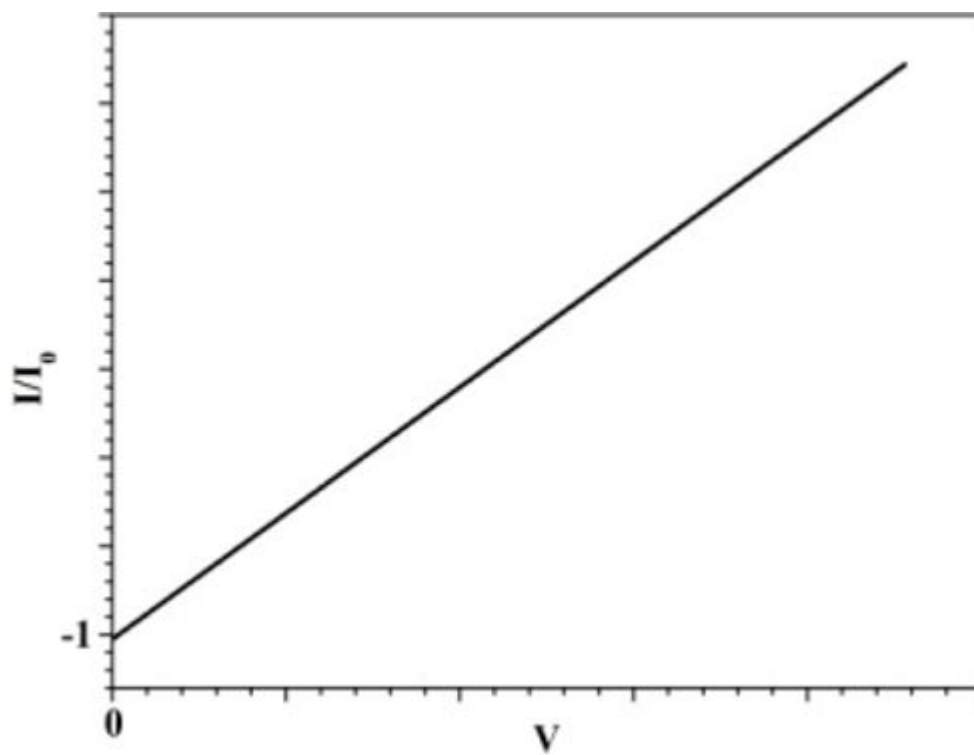
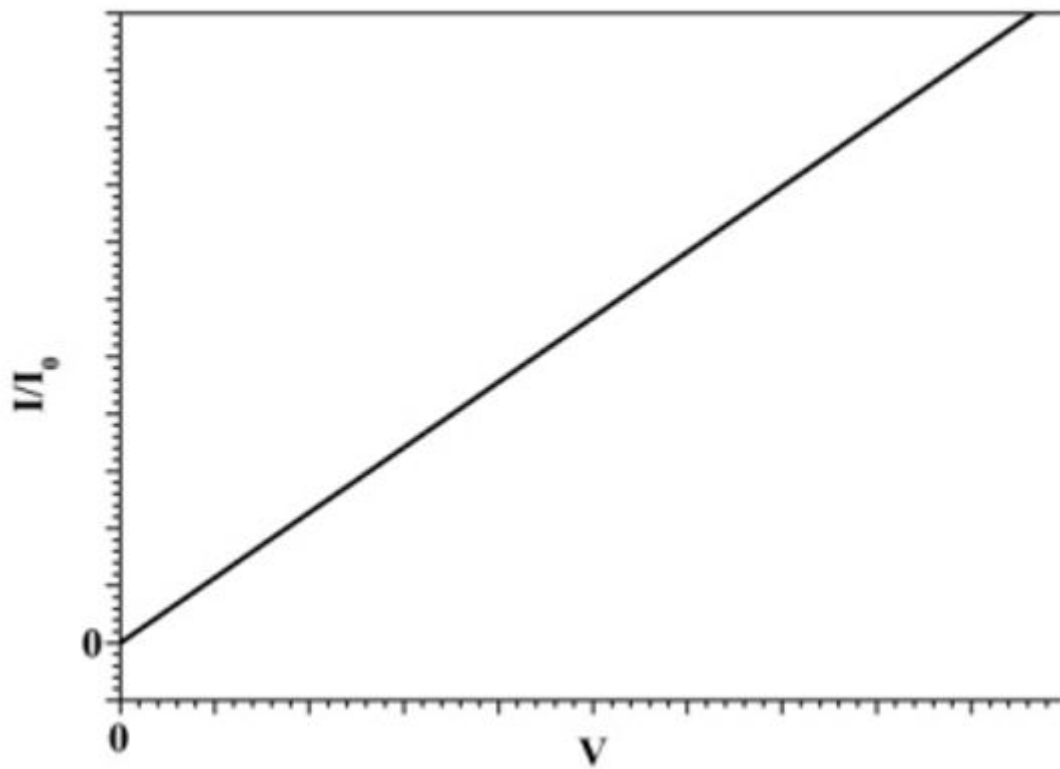
**Correct Marks : 1 Wrong Marks : 0**

In a pn junction diode, the diode current  $I$  (i.e. the current through the diode) can be expressed as  $I = I_0 \exp\left(\frac{eV}{kT} - 1\right)$  where  $I_0$  is the reverse saturation current.,  $V$  is the voltage across the diode and is positive for positive bias and negative for reverse bias,  $k$  is the Boltzmann constant=  $1.38 \times 10^{-23}$  J/K, and  $T$  is the absolute temperature. Then, which of the following is correct for a forward biased diode?

**Options :**

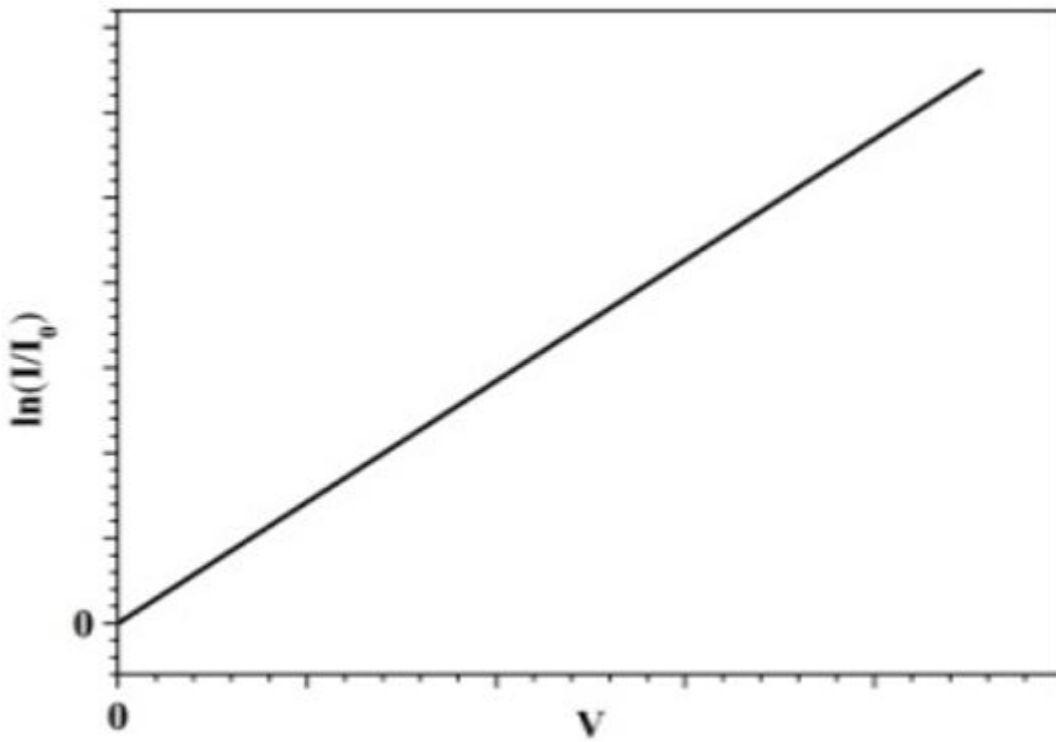


- 1. ✓



3. ✖

4. ✖



**Question Number : 44 Question Id : 2307962044 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A square frame of edge 10 cm is placed with its positive normal making an angle of  $60^\circ$  with a uniform electric field of 10 V/m. Find the flux of the electric field through the surface bounded by the frame.

**Options :**

1. ✘ 0.1 V m
2. ✔ 0.05 V m
3. ✘ 0.01 V m
4. ✘ 0.5 V m

**Question Number : 45 Question Id : 2307962045 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Two towers on the top of two hills are  $d$  m apart. The line joining them passes  $h$  m above a hill halfway between the towers. What is the longest wavelength of radio waves, which can be sent

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between the towers without appreciable diffraction effects?

Options :

$$h \times \sin\left(\tan^{-1}\left(\frac{h}{d}\right)\right)$$

1. ✘

$$h \times \tan\left(\sin^{-1}\left(\frac{2h}{d}\right)\right)$$

2. ✘

$$h \times \tan\left(\sin^{-1}\left(\frac{h}{d}\right)\right)$$

3. ✘

$$h \times \sin\left(\tan^{-1}\left(\frac{2h}{d}\right)\right)$$

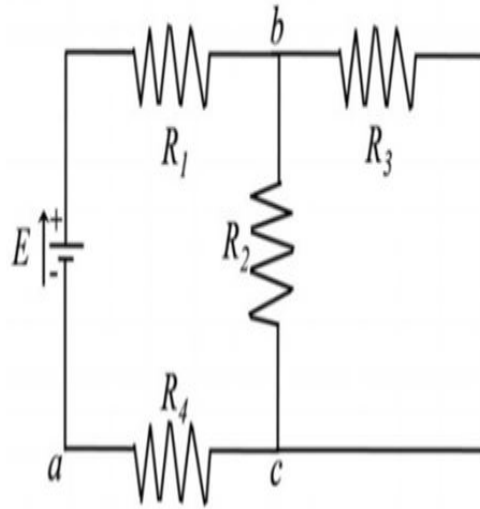
4. ✔

Question Number : 46 Question Id : 2307962046 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The figure below shows a multiloop circuit containing one ideal battery and four resistances  $R_1= 20 \Omega$ ,  $R_2= 20 \Omega$ ,  $R_3= 30 \Omega$ , and  $R_4= 8.0 \Omega$ .  $E= 12 \text{ V}$ . What is the current through the battery?



**Options :**

1. ✓ 0.30 A
2. ✗ 0.15 A
3. ✗ 0.2 A
4. ✗ 0.6 A

**Question Number : 47 Question Id : 2307962047 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

An ammeter is to be constructed which can read currents up to 1.001 A. If the coil has resistance of  $50 \Omega$  and takes 1 mA for full scale deflection, what should be the resistance of the shunt used?

**Options :**

1. ✗  $0.1 \Omega$
2. ✗  $0.02 \Omega$
3. ✓  $0.05 \Omega$

4. ✖  $2.0 \Omega$

**Question Number : 48 Question Id : 2307962048 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The atomic masses (approximately) of Beryllium and Germanium are 9 and 72, respectively. The ratio of atomic radii of Beryllium and Germanium is,

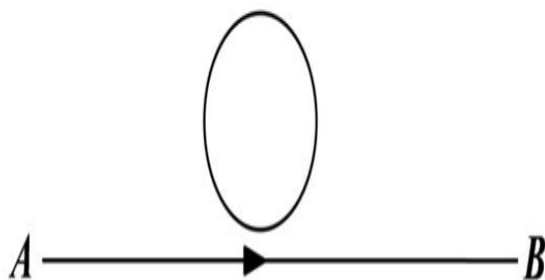
**Options :**

1. ✔ 1 : 2
2. ✖ 2 : 1
3. ✖ 1 : 4
4. ✖ 4 : 1

**Question Number : 49 Question Id : 2307962049 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A current  $I = I_0 t$  ampere flows from  $A$  to  $B$ , where  $I_0$  is a constant and  $t$  is the time in seconds after switching on the circuit. What is the direction of induced current, if any, in the loop of the wire shown in the figure below?



**Options :**

1. ✔ clockwise
2. ✖ anticlockwise
3. ✖ no current is induced in the loop
4. ✖ the direction of the induced current changes with time

**Question Number : 50 Question Id : 2307962050 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A resistor, an inductor, and a capacitor are connected in series to an a.c. power supply. When measured, the a. c. voltages across them are found to be 80 V, 30 V, and 90 V, respectively. What is the supply voltage?

**Options :**

1. ✘ 200 V

2. ✔ 100 V

3. ✘  $\frac{200}{\sqrt{2}}$  V

4. ✘ 140 V

## CHEMISTRY

<b>Section Id :</b>	23079634
<b>Section Number :</b>	2
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	50
<b>Number of Questions to be attempted :</b>	50
<b>Section Marks :</b>	50
<b>Mark As Answered Required? :</b>	Yes

**Sub-Section Number :** <https://exams.freshersnow.com/category/entrance-exam-question-papers/>

Sub-Section Id :

23079634

Question Shuffling Allowed :

Yes

Question Number : 51 Question Id : 2307962051 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The time taken for 10% completion of a first order reaction is 20 mins. Then for 19% completion, the reaction will take  $\log 81 = 1.9085$ ,  $\log 90 = 1.9542$

Options :

1. ✓ 40 mins
2. ✗ 60 mins
3. ✗ 30 mins
4. ✗ 50 mins

Question Number : 52 Question Id : 2307962052 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

At 25°C  $K_a$  of  $\text{HPO}_4^{2-}$  and  $\text{HSO}_3^-$  are  $4.8 \times 10^{-13}$  and  $6.3 \times 10^{-8}$  respectively. Which of the following is correct?

Options :

$\text{HPO}_4^{2-}$  is a stronger acid than  $\text{HSO}_3^-$  and  $\text{PO}_4^{3-}$  is a weaker base than  $\text{SO}_3^{2-}$ .

1. ✗
2. ✗



$\text{HPO}_4^{2-}$  is weaker acid than  $\text{HSO}_3^-$  and  $\text{PO}_4^{3-}$  is a weaker base than  $\text{SO}_3^{2-}$ .

3. ✓  $\text{HPO}_4^{2-}$  is a Weaker acid than  $\text{HSO}_3^-$  and  $\text{PO}_4^{3-}$  is a stronger base than  $\text{SO}_3^{2-}$ .

4. ✗  $\text{HPO}_4^{2-}$  is a Stronger acid than  $\text{HSO}_3^-$  and  $\text{PO}_4^{3-}$  is a stronger base than  $\text{SO}_3^{2-}$ .

Question Number : 53 Question Id : 2307962053 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In which of the following species the octet rule is NOT obeyed?

I.  $\text{I}_3^-$     II.  $\text{N}_2\text{O}$     III.  $\text{OF}_2$     IV.  $\text{NO}^+$

Options :

1. ✗ I and IV <https://exams.freshersnow.com/category/entrance-exam-question-papers/>

2. ✖ II and III

3. ✔ I only

4. ✖ IV only

Question Number : 54 Question Id : 2307962054 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Morphine, a pain killer is basic with the molecular formula  $C_{17}H_{19}NO_3$ . The conjugate acid of morphine is

Options :

1. ✖  $C_{17}H_{19}NO_3^+$

2. ✖  $C_{17}H_{18}NO_3$

3. ✖  $C_{17}H_{19}NO_3^-$

4. ✔  $C_{17}H_{20}NO_3^+$

Question Number : 55 Question Id : 2307962055 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The correct IUPAC name of the compound,  $[Pt(py)_4][Pt(Br)_4]$  is

Options :

1. ✔ Tetrapyridineplatinum (II) tetrabromidoplatinate(II)

2. ✖ Tetrabromidoplatinum (IV) tetrapyridineplatinate(II)

3. ✖ Tetrabromidoplatinate(I) tetrapyridineplatinum(II)

4. ✖ Tetrapyridineplatinum (IV) tetrabromidplatinate(IV)

Question Number : 56 Question Id : 2307962056 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which statement is incorrect about peptide bond?

Options :

1. ✓ C-N bond length in proteins is longer than usual C-N bond

2. ✖ Spectroscopic analysis show planar structure of -CONH-

3. ✖ C-N bond length in proteins is smaller than usual bond length of C-N bond

4. ✖ Proteins on hydrolysis gives L- $\alpha$ -amino acids

Question Number : 57 Question Id : 2307962057 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The decomposition of a radioactive substance follows I order reaction. The half life for radioactive decay of  $C^{14}$  is 5730 years. An archaeological artifact containing wood had only 80% of  $C^{14}$  found in a living tree. Calculate the age of sample in years ( $\log 80 = 1.9031$ )

Options :

1. ✘ 1728.8 years
2. ✘ 1278.7 years
3. ✔ 1845 years
4. ✘ 1268.7 years

Question Number : 58 Question Id : 2307962058 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is the strongest oxidizing agent?

Options :

1. ✘  $Cl^-$
2. ✘  $Mn^{2+}$
3. ✔  $MnO_4^-$
4. ✘  $Cr^{3+}$

Question Number : 59 Question Id : 2307962059 Question Type : MCQ Option Shuffling : No Is <https://exams.freshersnow.com/category/entrance-exam-question-papers/>

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Vapour density of an organic compound is 23. It contains 52.17% of carbon and 13% of hydrogen is: The compound gives iodoform test. The compound is

**Options :**

1. ✓ Ethanol
2. ✗ Dimethyl ether
3. ✗ Acetone
4. ✗ Methanol

**Question Number : 60 Question Id : 2307962060 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

An organic compound A ( $C_4H_9Cl$ ) on reaction with Na/diethyl ether gives a hydrocarbon which on monochlorination gives only one chloro derivative, then A is

**Options :**

1. ✓ Tert-butyl chloride
2. ✗ Sec-butyl chloride
3. ✗ Isobutyl chloride
4. ✗ n-butyl chloride

**Question Number : 61 Question Id : 2307962061 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The quantity of charge required to obtain one mole of aluminum from  $Al_2O_3$  is \_\_\_\_\_.

**Options :**

1. ✗ 1F
2. ✗ 6F

3. ✓ 3F

4. ✗ 2F

**Question Number : 62 Question Id : 2307962062 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The substance which is not an artificial sweetener

**Options :**

1. ✗ Sucralose

2. ✗ Alitame

3. ✗ Saccharin

4. ✓ Sucrose

**Question Number : 63 Question Id : 2307962063 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The chalcogen containing equal number of 's' and 'p' electron is

**Options :**

1. ✓ O

2. ✗ S

3. ✗ Mg

4. ✗ Te

**Question Number : 64 Question Id : 2307962064 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Given that polymers: A=Nylon,B=Buna-S, C=Polythene. Arrange these in the increasing order of their intermolecular forces.

**Options :**

1. ✗ A<B<C

2. ✘  $A < C < B$

3. ✔  $B < C < A$

4. ✘  $C < A < B$

Question Number : 65 Question Id : 2307962065 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

A, B and C are three elements forming a part of compound in oxidation states of +2, +5 and -2 respectively. What could be the compound?

Options :

1. ✘  $A_2(BC)_2$

2. ✘  $A_2(BC_4)_3$

3. ✔  $A_3(BC_4)_2$

4. ✘  $ABC$

Question Number : 66 Question Id : 2307962066 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following ions will give colourless aqueous solution?

Options :

1. ✘  $Ni^{2+}$

2. ✘  $Fe^{2+}$

3. ✘  $\text{Cu}^{2+}$

4. ✔  $\text{Cu}^+$

Question Number : 67 Question Id : 2307962067 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

How many ions are produced from  $[\text{Co}(\text{NH}_3)_6]\text{Cl}_2$  in solution?

Options :

1. ✘ 6

2. ✘ 4

3. ✔ 3

4. ✘ 2

Question Number : 68 Question Id : 2307962068 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Bleaching action of  $\text{SO}_2$  is due to

Options :

1. ✔ Reduction

2. ✘ Oxidation

3. ✘ Hydrolysis

4. ✘ Its acidic nature

Question Number : 69 Question Id : 2307962069 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

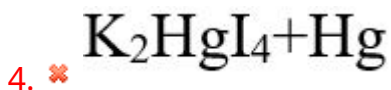
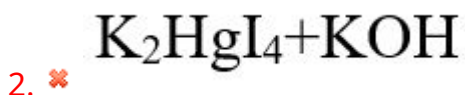
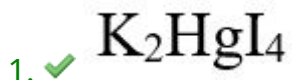
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**Correct Marks : 1 Wrong Marks : 0**

Nessler's reagent is

**Options :**



**Question Number : 70 Question Id : 2307962070 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

When acetylene magnesium chloride reacts with ethyl bromide, product obtained is

**Options :**

1. ✓ 1-Butyne

2. ✗ 2-Butyne

3. ✗ 1,2 Butadiene

4. ✗ 1,3 Butadiene

**Question Number : 71 Question Id : 2307962071 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

One mole of symmetric alkene on ozonolysis gives two moles of aldehyde having a molar mass of 44 u. The alkene is

**Options :**

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1. ✘ Propene
2. ✘ 1-Butyne
3. ✔ 2-Butene
4. ✘ Ether

**Question Number : 72 Question Id : 2307962072 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is not a common component of photochemical smog.

**Options :**

1. ✘ HCHO
2. ✘ Acrolein
3. ✘ Peroxy acetal nitrate
4. ✔ CFCs

**Question Number : 73 Question Id : 2307962073 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following salts will have the same value of Von't Hoff factor (i) as that of  $K_4[Fe(CN)_6]$

**Options :**

1. ✔  $Al_2(SO_4)_3$
2. ✘ NaCl
3. ✘  $Al(NO_3)_3$

4. ✘  $\text{Na}_2\text{SO}_4$

Question Number : 74 Question Id : 2307962074 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The reagent which does not react with both acetone and benzaldehyde

Options :

1. ✘  $\text{NaHSO}_3$

2. ✘ Phenyl hydrazine

3. ✔ Fehling's  
solution

4. ✘ Grignard reagent

Question Number : 75 Question Id : 2307962075 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If molality of a dilute solution is doubled, the value of molal depression constant,  $K_f$  will be

Options :

1. ✘ Doubled

2. ✘ Halved

3. ✘ Tripled

4. ✔ Unchanged

Question Number : 76 Question Id : 2307962076 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following electrolytes will have maximum coagulating value for  $\text{AgI}/\text{Ag}^+$

Options :

1. ✘  $\text{Na}_2\text{S}$

2. ✘  $\text{Na}_3\text{PO}_4$

3. ✘  $\text{Na}_2\text{SO}_4$

4. ✔  $\text{NaCl}$

Question Number : 77 Question Id : 2307962077 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following pairs has the same size ?

Options :

1. ✘  $\text{Fe}^{2+}, \text{Ni}^{2+}$

2. ✘  $\text{Zr}^{4+}, \text{Ti}^{4+}$

3. ✔  $\text{Zr}^{4+}, \text{Hf}^{4+}$

4. ✘  $\text{Zn}^{2+}, \text{Hf}^{4+}$

**Question Number : 78 Question Id : 2307962078 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In the extraction of copper from its sulphide ore, the metal is finally obtained by the reduction of cuprous oxide with

**Options :**

1. ✘ carbon monoxide
2. ✔ copper (I) sulphide
3. ✘ sulphur dioxide
4. ✘ iron (II) sulphide

**Question Number : 79 Question Id : 2307962079 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Oxidation number and co-ordination number of silver in Tollen's reagent respectively are

**Options :**

1. ✘ +1,1
2. ✘ +2,1
3. ✘ +2,2
4. ✔ +1,2

**Question Number : 80 Question Id : 2307962080 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The total number of electrons in 18mL of water (density = 1g/mL) is

**Options :**

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1. ✘  $6.02 \times 10^{23}$

2. ✘  $6.02 \times 10^{25}$

3. ✔  $6.02 \times 10^{24}$

4. ✘  $6.02 \times 18 \times 10^{23}$

**Question Number : 81 Question Id : 2307962081 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The transition in hydrogen atom which will give rise to least energetic photon according to Bohr's theory is

**Options :**

1. ✘  $n=6$  to  $n=1$

2. ✘  $n=5$  to  $n=4$

3. ✔  $n=6$  to  $n=5$

4. ✘  $n=5$  to  $n=3$

**Question Number : 82 Question Id : 2307962082 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

If the quantum numbers of electron in an atom are specified as  $n=3$ ,  $l=0$ ,  $m=0$ , then atomic number is possibly

**Options :**

1. ✘ 12,13

2. ✘ 13,14

3. ✘ 10,11

4. ✓ 11,12

**Question Number : 83 Question Id : 2307962083 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The electronegativity of the following elements increases in the order of

**Options :**

1. ✗ C,N,Si,P

2. ✗ N,Si,C,P

3. ✓ Si,P,C,N

4. ✗ P,Si,N,C

**Question Number : 84 Question Id : 2307962084 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The number of bonds in 1-phenylprop-1-ene is

**Options :**

1. ✗ 14 sigma, 8 pi

2. ✗ 18 sigma, 8 pi

3. ✓ 19 sigma, 4 pi

4. ✗ 14 sigma, 2 pi

**Question Number : 85 Question Id : 2307962085 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

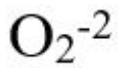
**Correct Marks : 1 Wrong Marks : 0**

The species having Bond order similar to that in CO

**Options :**

1. ✓  $N_2$

2. ✗ <https://exams.freshersnow.com/category/entrance-exam-question-papers/>



**Question Number : 86 Question Id : 2307962086 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The number of atoms present in one mole of an element is equal to Avogadro number. Which of the following element contains the greatest number of atoms?

**Options :**

1. ✘ 4g He

2. ✘ 46g Na

3. ✘ 0.40g Ca

4. ✔ 12g He

**Question Number : 87 Question Id : 2307962087 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Rank the following in the order of increasing entropy

a) 1 mole of  $H_2O$  (l) at  $25^{\circ}C$  and 1 atm P

b) 2 mole of  $H_2O$  (s) at  $0^{\circ}C$  and 1 atm P

c) 1 mole of  $H_2O$  (g) at  $100^{\circ}C$  and 1 atm P

d) 1 mole of  $H_2O$  (l) at  $0^{\circ}C$  and 1 atm P

**Options :**

1. ✔  $b < d < a < c$

2. ✘  $b < a < d < c$



3. ✘  $b < c < a < d$

4. ✘  $b < c < d < a$

**Question Number : 88 Question Id : 2307962088 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The reaction between sodium and water can be made less vigorous by

**Options :**

1. ✘ increasing the temperature

2. ✘ adding a little alcohol

3. ✔ Amalgamating sodium

4. ✘ adding a little acetic acid

**Question Number : 89 Question Id : 2307962089 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

For the reaction  $N_2 + 3H_2 \rightleftharpoons 2NH_3$  at 400K,  $K_p = 41$ .  $K_p$  for the reaction

$\frac{1}{2} N_2 + \frac{3}{2} H_2 \rightleftharpoons NH_3$  will be

**Options :**

1. ✔ 6.4

2. ✘ 0.02

3. ✘ 50

4. ✘ 4.6

**Question Number : 90 Question Id : 2307962090 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The product formed when phenol is treated with  $CHCl_3$  and NaOH is

**Options :**

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1. ✘ 3-hydroxybenzaldehyde
2. ✘ 2-hydroxybenzoic acid
3. ✘ 3-hydroxybenzoic acid
4. ✔ 2-hydroxybenzaldehyde

**Question Number : 91 Question Id : 2307962091 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is not an antacid

**Options :**

1. ✘ Aluminium hydroxide
2. ✘ Cimetidine
3. ✔ Phenelzine
4. ✘ Ranitidine

**Question Number : 92 Question Id : 2307962092 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The carboxyl functional group(-COOH) is present in

**Options :**

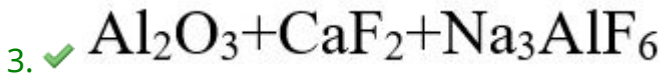
1. ✘ Picric acid
2. ✘ Barbituric acid
3. ✘ Ascorbic acid
4. ✔ Aspirin

**Question Number : 93 Question Id : 2307962093 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Aluminium is extracted from alumina by electrolysis of a molten mixture of

Options :



Question Number : 94 Question Id : 2307962094 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following B group vitamin can be stored in our body?

Options :

1. ✘ Vitamin B<sub>1</sub>

2. ✘ Vitamin B<sub>2</sub>

3. ✘ Vitamin B<sub>6</sub>

4. ✔ Vitamin B<sub>12</sub>

Question Number : 95 Question Id : 2307962095 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The number of structural isomers possible from the molecular formula  $C_3H_9N$  is

**Options :**

1. ✖ 5
2. ✖ 2
3. ✖ 3
4. ✔ 4

**Question Number : 96 Question Id : 2307962096 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The gas emitted by supersonic jet planes that slowly depletes the ozone layer is

**Options :**

1. ✖ CO
2. ✔ NO
3. ✖ SO<sub>2</sub>
4. ✖ O<sub>2</sub>

**Question Number : 97 Question Id : 2307962097 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Among the following compounds, the one that is most reactive towards electrophilic nitration is

**Options :**

1. ✖ benzoic acid
2. ✖ nitrobenzene

3. ✓ Toluene

4. ✗ benzene

**Question Number : 98 Question Id : 2307962098 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following has the highest melting point?

**Options :**

1. ✗ o-Xylene

2. ✗ m-Xylene

3. ✓ P-Xylene

4. ✗ Toluene

**Question Number : 99 Question Id : 2307962099 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Butylated hydroxyl toluene as a food additive act as

**Options :**

1. ✓ antioxidant

2. ✗ flavouring agent

3. ✗ colouring agent

4. ✗ emulsifier

**Question Number : 100 Question Id : 2307962100 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The major product formed when 2-bromo-2-methylbutane is refluxed with ethanolic KOH is

**Options :**

1. ✓ 2- methylbut-2-ene

2. ✗ 2- methylbutan-1-ol

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3. ✖ 2- methylbut-1-ene
4. ✖ 2- methylbutan-2-ol

## BIOLOGY

Section Id :	23079635
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	23079635
Question Shuffling Allowed :	Yes

**Question Number : 101 Question Id : 2307962101 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Monohybrid ratio of 1:2:1 is obtained in

**Options :**

1. ✔ Incomplete Dominance
2. ✖ Complete dominance
3. ✖ Epistasis
4. ✖ Polymeric inheritance.

**Question Number : 102 Question Id : 2307962102 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The terga, sterna and pleura of cockroach body are jointed by

**Options :**

1. ✘ Muscular tissue
2. ✔ Arthrodial membrane
3. ✘ cartilage
4. ✘ cementing glue

**Question Number : 103 Question Id : 2307962103 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Age of a tree can be estimated by

**Options :**

1. ✘ Diameter of its heartwood
2. ✔ Number of annual ring
3. ✘ Its height and girth
4. ✘ Biomass

**Question Number : 104 Question Id : 2307962104 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In sugarcane,  $14\text{CO}_2$  is fixed into malic acid with the help of the enzyme

**Options :**

1. ✘ RuBP carboxylase
2. ✘ Ribulose phosphate kinase
3. ✔ PEP carboxylase
4. ✘ Fructose phosphate

**Question Number : 105 Question Id : 2307962105 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

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What are meiocytes?

**Options :**

1. ✘ Somatic cells
2. ✘ Meristematic cells
3. ✘ Parenchyma cell
4. ✔ Gamete mother cell

**Question Number : 106 Question Id : 2307962106 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Seeded ferns descended into Cycads and Angiosperm in which geological time?

**Options :**

1. ✘ Carboniferous period
2. ✘ Triassic period
3. ✘ Jurassic period
4. ✔ Permian period

**Question Number : 107 Question Id : 2307962107 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Each trophic level has a certain mass of living material at a particular time is called

**Options :**

1. ✔ Standing crop
2. ✘ Primary production
3. ✘ Storage material
4. ✘ Biomass

**Question Number : 108 Question Id : 2307962108 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

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In non primate mammals like cows, sheep, rats, deers, dogs, tiger which type of reproductive cycle occur?

**Options :**

1. ✘ Menstrual cycle
2. ✘ Euthoric cycle
3. ✘ Oviparous cycle
4. ✔ Oestrus cycle

**Question Number : 109 Question Id : 2307962109 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

During transcription of Bacterial RNA at promoter region joining of RNA polymerase and which factor is required?

**Options :**

1. ✘ Rho-factor
2. ✔ Sigma-factor
3. ✘ Alfa- factor
4. ✘ Gama- factor

**Question Number : 110 Question Id : 2307962110 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Bio-fertilizers are organisms that enrich the nutrient quality of soil present in symbiotic as well as free-living. Which one of following is free living in soil?

**Options :**

1. ✘ Rhizobium
2. ✘ Azolla
3. ✘ Genus Glomus
4. ✔ Azospirillum and Azotobacter

**Question Number : 111 Question Id : 2307962111 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In conservation of Biodiversity, many cultures, tracts of forest, all tree wildlife were venerated and given total protection are found in Khasi and Jaintia hill in Meghalaya are grouped under:

**Options :**

1. ✘ Ex situ conservation
2. ✔ Sacred groves
3. ✘ Conservation
4. ✘ Wild life protection

**Question Number : 112 Question Id : 2307962112 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The phenylketonuria disease in which “failure of brain to develop in infancy” is due to:

**Options :**

1. ✔ Autosomal recessive disorder
2. ✘ Sex linked recessive disorder
3. ✘ Autosomal diominant disorder
4. ✘ Sex linked disorder

**Question Number : 113 Question Id : 2307962113 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In the mid of menstrual cycle, the rupture of graafian follicle is caused by which hormone?

**Options :**

1. ✘ Estrogen
2. ✘ lactine
3. ✔ Luteinising hormone
4. ✘ Progesterone

**Question Number : 114 Question Id : 2307962114 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In grass, specialized cells surrounding the guard cells are called

**Options :**

1. ✓ Bulliform cells
2. ✗ Subsidiary cells
3. ✗ Complementary
4. ✗ lenticels

**Question Number : 115 Question Id : 2307962115 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A major characteristic of monocot root is the presence of

**Options :**

1. ✗ Scattered vascular bundles
2. ✗ Open vascular bundles
3. ✓ Vascular bundle without cambium
4. ✗ Cambium sandwiched between phloem and xylem along with radius

**Question Number : 116 Question Id : 2307962116 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In human population pyramids of age, shown as pre-reproductive is greater than reproductive and post reproductive is lesser than reproductive

**Options :**

1. ✓ Expanding
2. ✗ Stable
3. ✗ Declining

4. ✘ Motivating

**Question Number : 117 Question Id : 2307962117 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In the interaction of two species, one of species harmed and other is unaffected, what do we call this relationship?

**Options :**

1. ✘ Competition
2. ✘ Predatation
3. ✘ Parasitism
4. ✔ Amensalism

**Question Number : 118 Question Id : 2307962118 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

What percentage of photosynthetically active radiation (PAR) from the incident solar radiation are used?

**Options :**

1. ✘ 100%
2. ✔ 2-10%
3. ✘ 1-5%
4. ✘ 50%

**Question Number : 119 Question Id : 2307962119 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following forms linings of canals of sponges?

**Options :**

1. ✔ Flagellated cells

2. ✘ Flattened cells
3. ✘ Flagellated and flattened cells
4. ✘ Cutical cells

**Question Number : 120 Question Id : 2307962120 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The Avena curvature is used for bioassay of

**Options :**

1. ✘ GA3
2. ✔ IAA
3. ✘ Ethylene
4. ✘ ABA

**Question Number : 121 Question Id : 2307962121 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The partial pressure of Oxygen in the alveoli of the lung is

**Options :**

1. ✘ equal to that in the blood
2. ✔ more than that in the blood
3. ✘ less than that in the blood
4. ✘ less than that of carbon dioxide

**Question Number : 122 Question Id : 2307962122 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following is also known as antidiuretic hormone?

**Options :**

1. ✘ Oxytocin

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2. ✓ Vasopressin

3. ✗ Adrenaline

4. ✗ Calcitonin

**Question Number : 123 Question Id : 2307962123 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The most accepted line of descent in human evolution is

**Options :**

1. ✗ Australopithecus - Ramapithecus - Homo sapiens - Homo habilis

2. ✗ Homo erectus - Homo habilis - Homo sapiens

3. ✓ Ramapithecus - Homo habilis - Homo erectus - Homo sapiens

4. ✗ Australopithecus - Ramapithecus - Homo erectus - Homo habilis - Homo sapiens

**Question Number : 124 Question Id : 2307962124 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Amensalism is an association between two species where

**Options :**

1. ✗ one species is harmed and other is benefitted

2. ✓ one species is harmed and other is unaffected

3. ✗ one species is benefitted and other is unaffected

4. ✗ both species are harmed

**Question Number : 125 Question Id : 2307962125 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The second stage of hydrosere is occupied by plants like

**Options :**

1. ✗ Azolla

2. ✘ Typha
3. ✘ Salix
4. ✔ Vallisneria

**Question Number : 126 Question Id : 2307962126 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Sacred grooves are specially useful in

**Options :**

1. ✘ generating environmental awareness
2. ✘ preventing soil erosion
3. ✘ year round flow of water in rivers
4. ✔ conserving rare and threatend species

**Question Number : 127 Question Id : 2307962127 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Phycoerythrin, chlorophyll a and chlorophyll d occur in

**Options :**

1. ✘ Phaeophyceae
2. ✘ Chlorophyceae
3. ✘ Xanthophyceae
4. ✔ Rhodophyceae

**Question Number : 128 Question Id : 2307962128 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which pair of disease is caused by two different genes located in X chromosome?

**Options :**

1. ✘ Phenyl ketonuria and colour blindness

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- ✘ sickle cell anemia and haemophilia
- ✘ Thalassaemia and colour blindness
- ✔ Haemophilia and colour blindness

**Question Number : 129 Question Id : 2307962129 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

During which phase of gamete formation, the enzyme recombinase participate

**Options :**

- ✘ Metaphase I
- ✔ Prophase I
- ✘ Anaphase II
- ✘ Prophase II

**Question Number : 130 Question Id : 2307962130 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In the leaves of C4 plants malic acid formation during carbondioxide fixation occurs with in the cells of

**Options :**

- ✘ Bundle sheath
- ✘ Phloem
- ✘ Epidermis
- ✔ Mesophyll

**Question Number : 131 Question Id : 2307962131 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Flame cells are the excretory organ in

**Options :**

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1. ✓ Planaria
2. ✗ Hydra
3. ✗ Hydrilla
4. ✗ Cockroach

**Question Number : 132 Question Id : 2307962132 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The product of which of these organisms has been commercialised as blood cholesterol lowering agent?

**Options :**

1. ✗ *Trichoderma polysporum*
2. ✗ *Saccharomyces cerevisiae*
3. ✗ *Aspergillus niger*
4. ✓ *Monascus purpureus*

**Question Number : 133 Question Id : 2307962133 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The Oxygen-haemoglobin dissociation curve will show a right shift in case of

**Options :**

1. ✗ High pCO<sub>2</sub>
2. ✓ High pO<sub>2</sub>
3. ✗ Low pCO<sub>2</sub>
4. ✗ less H concentration

**Question Number : 134 Question Id : 2307962134 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

A competitive inhibitor of succinic dehydrogenase is

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**Options :**

1. ✘ alphaketo-glutarate
2. ✘ malate
3. ✔ malonate
4. ✘ oxaloacetate

**Question Number : 135 Question Id : 2307962135 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Tendons and ligaments are specialized tissues of

**Options :**

1. ✔ dense regular connective tissue
2. ✘ dense irregular connective tissue
3. ✘ loose connective tissue
4. ✘ smooth muscle tissue

**Question Number : 136 Question Id : 2307962136 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Colour perception in man is due to

**Options :**

1. ✘ rhodopsin pigment in rod cells
2. ✔ iodopsin pigment in cone cells
3. ✘ iodopsin pigment in rod cell
4. ✘ rhodopsin pigment in cone cells

**Question Number : 137 Question Id : 2307962137 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Podocytes are the cells present in

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**Options :**

1. ✘ cortex of nephron
2. ✔ innerwall of Bowman's capsule
3. ✘ Outerwall of Bowman's capsule
4. ✘ Wall of glomerular capillaries

**Question Number : 138 Question Id : 2307962138 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Seminal plasma of humans is rich in

**Options :**

1. ✘ glucose, certain enzymes but no calcium
2. ✔ fructose, calcium and certain enzymes
3. ✘ fructose and certain enzymes but poor in calcium
4. ✘ Fructose, calcium but no enzyme

**Question Number : 139 Question Id : 2307962139 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Analogous organs arise due to

**Options :**

1. ✘ Divergent evolution
2. ✘ Artificial selection
3. ✘ Genetic drift
4. ✔ Convergent evolution

**Question Number : 140 Question Id : 2307962140 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The pathogen of Ringworm disease is

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**Options :**

1. ✘ Round worm
2. ✘ Tapeworm
3. ✔ Microsporium
4. ✘ Filarial worm

**Question Number : 141 Question Id : 2307962141 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following triplet code responsible for Sickle cell anaemia?

**Options :**

1. ✘ GAG
2. ✘ AAG
3. ✔ GUG
4. ✘ GAA

**Question Number : 142 Question Id : 2307962142 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is a 'Living' fossil?

**Options :**

1. ✔ Limulus
2. ✘ Laccifer
3. ✘ Ades
4. ✘ Locusta

**Question Number : 143 Question Id : 2307962143 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The vegetative propagule bulbils are found in

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**Options :**

1. ✓ Agave
2. ✗ Bryophyllum
3. ✗ Eicchornia
4. ✗ Strobilanthus

**Question Number : 144 Question Id : 2307962144 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following gland is large sized at birth, but reduces its size with ageing?

**Options :**

1. ✗ Pineal
2. ✗ Pituitary
3. ✓ Thymus
4. ✗ Thyroid

**Question Number : 145 Question Id : 2307962145 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

In the Lac operon of E.coli, the gene ' i ' codes for

**Options :**

1. ✗ Inducer
2. ✓ Repressor
3. ✗ Lactase
4. ✗ Beta-galactosidase

**Question Number : 146 Question Id : 2307962146 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

The chemical substance abundantly present in middle lamella is

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**Options :**

1. ✘ Cutin
2. ✘ Chitin
3. ✘ Lignin
4. ✔ Calcium pectate

**Question Number : 147 Question Id : 2307962147 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following is essential for carboxy peptidase?

**Options :**

1. ✘ Boron
2. ✘ Manganese
3. ✘ Copper
4. ✔ Zinc

**Question Number : 148 Question Id : 2307962148 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Blood vascular system of Pheretima is of

**Options :**

1. ✔ Closed type
2. ✘ Open type
3. ✘ Portal type
4. ✘ Mixed type

**Question Number : 149 Question Id : 2307962149 Question Type : MCQ Option Shuffling : No  
Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

Cork tissue of a plant arises from

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**Options :**

1. ✘ Periderm
2. ✔ Phellogen
3. ✘ Phellogerm
4. ✘ Phellem

**Question Number : 150 Question Id : 2307962150 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 1 Wrong Marks : 0**

RQ for protein is

**Options :**

1. ✘ 1
2. ✘ 2
3. ✔ 0.9
4. ✘ 0