

# Telangana State Council Higher Education

## 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>	Agriculture and Medical English 09th August 2021 Shift 2
<b>Subject Name :</b>	Agriculture and Medical (English)
<b>Creation Date :</b>	2021-08-10 10:45:25
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Yes

## **Agriculture and Medical (English)**

**Group Number :**

1

**Group Id :**

34260412

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<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	180
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	160
<b>Is this Group for Examiner? :</b>	No

## Botany

<b>Section Id :</b>	34260436
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	40
<b>Number of Questions to be attempted :</b>	40
<b>Section Marks :</b>	40
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	34260436
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 3426041761 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0**

Choose the correct statements among the following.

**Options :**

1.

Asexual reproduction takes places in mules and working bees

- ✓  
2. In single cell organisms, reproduction is synonymous with growth
- ✗  
3. Fungi reproduces only by fragmentation
- ✗  
4. The total number described of species known are in the range of 1.5 to 1.6 millions

**Question Number : 2 Question Id : 3426041762 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Identify the correct statements among the following.

- A) No virus contains both DNA and RNA
- B) Viroids were named by Pasteur
- C) Scrapie disease of sheep is caused by proteins
- D) In six kingdom classification three domains are present

**Options** A, B, C

✗

1.

2.



3. ✘ A, B, D

4. ✔ A, C, D

**Question Number : 3 Question Id : 3426041763 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Choose the correct statements.

- A) Assyrians recorded information of crop plants in the picture form.
- B) Nehemiah Grew studied the anatomy of plant tissue
- C) Bouskein refers to cattle
- D) Application of physical and chemical principle developed new branches of Botany like genetics

**Options :**

1. ✔ A, B

2. ✘ B, C

✘ C, D

3.

4.

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**Question Number : 4 Question Id : 3426041764 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Arrange the functions of the following respectively

A) Elaters      B) Indusium      C) Agar

**Options :**

1. ✘ To grow microbes;      Spore dispersal;      Covering of sorus
2. ✘ Covering of sorus;      Spore dispersal;      To grow microbes
3. ✘ Spore dispersal;      To grow microbes;      Covering of sorus
4. ✔ Spore dispersal;      Covering of sorus;      To grow microbes

**Question Number : 5 Question Id : 3426041765 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Assertion (A) : In haplontic life cycle zygote acts as meocyte.

Reason (R) : In *Spirogyra*, non flagellated gamets will fuse to form zygote.

The correct option among the following is:

**Options :**

1. ✘ (A) is true, (R) is true and (R) is the correct explanation for (A)
2. ✔ (A) is true, (R) is true but (R) is not the correct explanation for (A)
3. ✘ (A) is true but (R) is false
4. ✘ (A) is false but (R) is true

**Question Number : 6 Question Id : 3426041766 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0**

Match the following lists:

List-I	List-II	List-III
A) Leathery epicarp	i) Oblique growth	I) Cladophylls
B) Apocarpous gynoecium	ii) Limited growth branch	II) Papery mesocarp
C) Lateral branch of underground stem	iii) Superior ovary	III) Mesocarp of fruitlet is edible
D) <i>Asparagus</i>	iv) Aggregate fruit	IV) <i>Chrysanthemum</i>

The correct match is:

**Options :**

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✘

A	B	C	D
ii, I	iii, III	iv, IV	i, II

1.

✔

A	B	C	D
iii, II	iv, III	i, IV	ii, I

2.

✘

A	B	C	D
iii, II	ii, IV	iv, III	i, I

3.

✘

A	B	C	D
i, IV	iii, III	ii, II	iv, I

4.

Question Number : 7 Question Id : 3426041767 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Match the following lists.

List-I	List-II	List-III
A) Parthenocarpic fruit	i) Dichasial and monochasial cyme	I) <i>Avicennia</i>
B) Verticillaster	ii) Roots grow vertically upwards	II) <i>Agave</i>
C) Swampy areas	iii) <i>Dioscoria</i>	III) Banana
D) Storage of food	iv) Sucker	IV) Lamiaceae

The correct match is:

**Options :**

A	B	C	D
ii, III	iii, IV	i, II	iv, I

✘

1.

✓

A	B	C	D
iv, III	i, IV	ii, I	iii, II

2.

✘

A	B	C	D
iv, II	iii, III	ii, IV	i, I

3.

✘

A	B	C	D
i, IV	ii, III	iii, II	iv, I

4.

**Question Number : 8 Question Id : 3426041768 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Among the following plants, how many show modifications for the photosynthetic purpose other than leaf ?

*Taeniophyllum, Casuarina, Asparagus, Bougainvillea, Dioscoria, Opuntia, Hibiscus, Chrysanthemum*

**Options :**

4

1.

2.

2

✘

5

3.

✘

7

4.

**Question Number : 9 Question Id : 3426041769 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Arrange the below mentioned plants as examples of diadelphous, epiphyllous, and polyadelphous respectively.

A) Citrus B) Lilly C) Pea D) Banana

**Options :**

✘

A, B, C

1.

✔

C, B, A

2.

✘

B, C, D

3.

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D, C, B

4. ✘

Question Number : 10 Question Id : 3426041770 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
 Correct Marks : 1 Wrong Marks : 0

In which organisms the following structures are developed respectively?

Conidia; Non motile spores; Buds; Zoospores

- A) *Chlamydomonas*
- B) Yeast
- C) *Rhizopus*
- D) *Pencillium*
- E) *Wolfia*

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Options :

A, C, D, B

✘

1.

✓ D, C, B, A

2.

B, C, D, E

✘

3.

✘

D, A, B, C

4.

**Question Number : 11 Question Id : 3426041771 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Arrange the sequence of events in microsporangogenesis.

- A) Disassociation of microspore as pollen grains
- B) Anther maturation and dehydration
- C) Pollen mother cell undergoes meiotic division
- D) Microspore tetrad

**Options** A, B, D, C



1.

B, C, D, A



2.

C, D, B, A



3.

A, B, C, D



4.

**Question Number : 12 Question Id : 3426041772 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Identify the correct statements among the following.

- A) Ability of pistil to recognize the pollen is the result of a dialogue between pollen grain and pistil
- B) Epicotyl has a shoot apex and a few leaf promordia enclosed in a hallow folial structure coleoptile
- C) Seed which germinate immediately after formation will be used as store food for next season
- D) In coconut, white kernel is cellular endosperm and liquid is free nuclear endosperm.

Options: A, B, C

✘

1.

A, C, D

✘

2.

B, C, D

✘

3.

A, B, D

✔

4.

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

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Identify the plants families and arrange the families based on the numerical numbers in ascending order

*Phaseolus, Smilax, Dracaena, Colchicum, Cajanus, Withania, Atropa, Datura, Ruscus, Capsicum, Derris, Cesturm*

**Options :**

1. ✘ Fabaceae, Solanaceae, Liliaceae
2. ✘ Solanaceae, Fabaceae, Liliaceae
3. ✔ Fabaceae, Liliaceae, Solanaceae
4. ✘ Liliaceae, Fabaceae, Solanaceae

**Question Number : 14 Question Id : 3426041774 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Assertion (A) :- Numerical Taxonomy require mathematical methods and computer.

Reason (R) :- All characters are given codes, numbers and with equal importance, and hundreds of character are to be evaluated.

The correct option among the following is:

**Options :**

✓ (A) is true, (R) is true and (R) is the correct explanation for (A)

1.

✗ (A) is true, (R) is true but (R) is not the correct explanation for (A)

2.

✗ (A) is true but (R) is false

3.

✗ (A) is false but (R) is true

4.

**Question Number : 15 Question Id : 3426041775 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

What are the common characters of both prokaryotic and eukaryotic cells?

- A) Cytoplasm      B) Plasma membrane      C) Mitochondria  
 D) Cellulose cell wall      E) Meiotic cell division

**Options** B, C, D

✗

1.

✓ A, B

C, D, E

2.

3.

4.



B, E

**Question Number : 16 Question Id : 3426041776 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Match the following lists.

List-I	List-II
A) Algal cell	I) Protects and gives shape
B) Pteridophyte cell	II) Cellulose, galactans, mannans
C) Calcium pectate	III) Cellulose and hemicellulose pectin
D) Cell wall	IV) Holds as glue with neighbouring cells

The correct match is:

**Options :**

A	B	C	D
II	III	IV	I



1.

A	B	C	D
III	II	I	IV



2.

A  
II

B  
I

C  
IV

D  
III

3.

A	B	C	D
IV	III	II	I

4. ✖

**Question Number : 17 Question Id : 3426041777 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Match the following lists.

List-I	List-II	List-III
A) Deoxy Ribose	i) Gums	I) Fatty acids
B) Lipids	ii) $C_5H_{10}O_4$	II) True macro molecules
C) Polymeric substances	iii) Trypsin	III) Cellulose
D) Polypeptides	iv) Glycerol	IV) carbohydrate

The correct match is:

**Options :**

A	B	C	D
✖ ii, IV	iii, I	i, III	iv, II

1.

A	B	C	D
✖ iii, II	ii, I	i, III	iv, IV

2.

A	B	C	D
✖ iv, I	i, III	iii, IV	ii, II

3.

4.



A  
ii, IV

B  
iv, I

C  
i, III

D  
iii, II

Question Number : 18 Question Id : 3426041778 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Match the following lists.

List-I

- A) Glycerol  
B) Aromatic amino acid  
C) Lecithin  
D) Gingelly oil

List -II

- I) Phospholipid  
II) Lower melting point  
III) Trihydroxypropane  
IV) Tryptophan

The correct match is:

Options :

A B C D  
III IV I II



1.

A B C D  
I III IV II



2.

A B C D  
II IV III I



3.

4.

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A	B	C	D
IV	I	II	III

**Question Number : 19 Question Id : 3426041779 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Choose the correct statements among the following.

- A) The stage between two meiotic division is called interphase
- B) During zygotene pairing of homologous chromosomes and synapsis taken place
- C) Initiation of mitotic spindle takes place during metaphase
- D) In animals, mitotic cell division takes place in diploid somatic cells and not in haploid cells

**Options :**

A, B

✘

1.

B, C

✘

2.

C, D

✘

3.

4. ✓

B, D

**Question Number : 20 Question Id : 3426041780 Question Type : MCQ Option Shuffling : Yes**

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**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Choose the correct statements among the following.

- A) Ring arrangement of vascular bundle is a character of dicot system
- B) The root hairs are branched and sometimes secretory
- C) The storage cells in xylem are thin walled, made up of cellulose and stores tannin like substances
- D) Parenchyma cells generally present in medullary rays

**Options** A, B, C

✘

1.

✘

2.

B, C, D

✔

3.

A, C, D

✘

4.

A, B, D

**Question Number : 21 Question Id : 3426041781 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Assertion (A) : The primary and secondary phloem gradually crushed in the secondary growth of dicot stem.

Reason (R) : The secondary xylem is produced more than secondary phloem.

The correct option among the following is:

**Options** (A) is true, (R) is true and (R) is the correct explanation for (A)



1.



(A) is true, (R) is true but (R) is not the correct explanation for (A)

2.



(A) is true but (R) is false

3.



(A) is false but (R) is true

4.

**Question Number : 22 Question Id : 3426041782 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Choose the incorrect statements.

- A) In mesophytes unless the habitat is specialized no adaption is necessary
- B) 'Warming' a British botanist classified plant communities as three ecological groups based on dependence of water
- C) Due to the flooding destroyed lands the secondary succession occurs much faster
- D) In hydrophytes the multi-layered epidermis will be useful in absorbing only water from surroundings

Options:

1. A, B



2.



B, D

3.



C, D

4.



A, C

5.

Question Number : 23 Question Id : 3426041783 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How many matured trees are required to support supply of oxygen to 42,000 people in a year ?

**Options :**

42000

✘

1.

24000

✘

2.

15000

✘

3.

21000

✔

4.

**Question Number : 24 Question Id : 3426041784 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Identify the substrate of these enzymes respectively

Arginosuccinase; Hexokinase; Glutamine synthetase

- A) Glutamic acid      B) Arginine      C) Arginosuccinic acid  
 D) Glucose            E) Fructose-1, 6 phosphate

**Options :**

A, B, D

✘

1.

B, C, D

✘

2.



C, D, A



3.

B, D, E



4.

**Question Number : 25 Question Id : 3426041785 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Assertion (A) : When a green alga *Cladophora* is placed in a suspension of aerobic bacteria, on illumination of different lights, only at blue and red light bacteria accumulated.

Reason (R) : The bacteria release  $O_2$  by the process of photosynthesis.

The correct option among the following is:

**Options :**



(A) is true, (R) is true and (R) is the correct explanation for (A)

1.



(A) is true, (R) is true but (R) is not the correct explanation for (A)

2.



(A) is true but (R) is false

3.

(A) is false but (R) is true

4.

**Question Number : 26 Question Id : 3426041786 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Assertion (A) : Electrons released from photosystem are used by electron transport chain during photophosphorylation.

Reason (R) : Movement of electrons from pheophytin to PSI reaction centre is an oxidation reduction reaction.

The correct option among the following is:

**Options :**

1. ✓ (A) is true, (R) is true and (R) is the correct explanation for (A)
2. ✗ (A) is true, (R) is true but (R) is not the correct explanation for (A)
3. ✗ (A) is true but (R) is false
4. ✗ (A) is false but (R) is true

**Question Number : 27 Question Id : 3426041787 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

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Choose the correct statements.

- A) Photorespiration is synthesis of neither sugar nor ATP rather release of  $O_2$
- B) CAM metabolism is an alternative to  $C_3$  and  $C_4$  pathways of  $CO_2$  fixation in plants in dry and hot climates
- C) Bundle sheath cells are having large number of chloroplasts, thick walls with no intercellular space
- D) After world war II photosynthetic studies were exemplary

Options

- 1.  A, B, C
- 2.  B, C, D
- 3.  A, C, D
- 4.  A, B, D

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**Question Number : 28 Question Id : 3426041788 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Identify the wrong statement related to Glycolysis

- A) Glycolysis has 10 chain reactions
- B) In Glycolysis, ATP is utilized in one step
- C) There is one step related to formation of  $\text{NADH} + \text{H}^+$
- D) Glycolysis can taken place in the mitochondria matrix also

Options **A, B**

✘

1.

✔

**B, D**

2.

✘

**B, C**

3.

✘

**A, C**

4.

Question Number : 29 Question Id : 3426041789 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Identify the condensation and cleavage reactions in the TCA cycle respectively, among the following.

- A)  $\text{OAA} + \text{Acetyl CoA} \rightarrow \text{Citric acid} + \text{CoA}$
- B)  $\text{Fumaric acid} + \text{H}_2\text{O} \rightarrow \text{Malic acid}$
- C)  $\text{Cis-aconitic acid} \rightarrow \text{Isocitric acid}$
- D)  $\text{Succinyl CoA} + \text{ADP} + \text{Pi} \rightarrow \text{Succinic acid} + \text{ATP} + \text{CoA}$

**Options:** A, B



1.



B, C

2.



A, D

3.



C, D

4.

**Question Number : 30 Question Id : 3426041790 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Match the following lists.

List-I		List-II	
A)	Complex I	I)	Cytochrome C oxidase
B)	Complex II	II)	Cytochrome $bc_1$ complex
C)	Complex III	III)	ATP synthase
D)	Complex IV	IV)	Succinic dehydrogenase
E)	Complex V	V)	NADH dehydrogenase

The correct match is:

**Options :**

1.

2. ✘

A	B	C	D	E
III	IV	V	I	II

3. ✔

A	B	C	D	E
V	IV	II	I	III

4. ✘

A	B	C	D	E
II	III	IV	V	I

**Question Number : 31 Question Id : 3426041791 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Find out in which of the following enzymatic reactions, NADH is converted to NAD

- A) Acetaldehyde  $\rightarrow$  Ethanol
- B) Glyceraldehyde 3 - Phosphate  $\rightarrow$  3 - phosphoglyceric acid
- C) Pyruvic acid  $\rightarrow$  lactic acid
- D) Oxalosuccinic acid  $\rightarrow$   $\alpha$  - ketoglutaric acid
- E)  $\alpha$  - ketoglutaric acid  $\rightarrow$  succinyl CoA

**Options :**

1. ✘

B, C

2.

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A, B

✘

3.

A, C

✔

4.

**Question Number : 32 Question Id : 3426041792 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Assertion (A) : Two copies of the gene are the two allelic forms of which, one allele produces a non-functional enzyme.

Reason (R) : The modified allele is generally the recessive allele.

The correct option among the following is:

**Options:** (A) is true, (R) is true and (R) is the correct explanation for (A)

✔

1.

✘

(A) is true, (R) is true but (R) is not the correct explanation for (A)

2.

✘

(A) is true but (R) is false

3.

(A) is false but (R) is true

4.

**Question Number : 33 Question Id : 3426041793 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Choose the correct statements for co-dominance and Incomplete dominance respectively from the following.

i) Codominance      ii) In complete dominance

- A)  $F_1$  generation did not resemble either of the two parents
- B) In  $F_1$  generation new trait other than parents will be expressed
- C) In  $F_1$  generation resembles both parents equally
- D)  $F_1$  generation will show 3:1 ratio

**Options :**



C, A

1.



A, B

2.



A, C

3.



A, D

4.

**Question Number : 34 Question Id : 3426041794 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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DNA is \_\_\_\_\_ charged and is usually held with some proteins which are \_\_\_\_\_ charged in a region termed as \_\_\_\_\_

- A) Positively
- B) Negatively
- C) Loops
- D) Genophore
- E) Nucleoid

**Options** B, C, D

✘

1.

✘

C, A, E

2.

✘

D, E, B

3.

✔

B, A, E





4.

**Question Number : 35 Question Id : 3426041795 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Choose the incorrect statements.

- A) Transformation was not inhibited by protease and DNase
- B) Transformation was affected by protease and DNase
- C) Transformation was affected by RNase
- D) Transformation was affected by DNase

**Options :**

- 1.  A, B, C
- 2.  B, C, D
- 3.  A, C, D
- 4.  A, B, D

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**Question Number : 36 Question Id : 3426041796 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Identify the correct statement

Methylation of DNA is done by DNA methylase. It adds a methyl group to the 5' carbon of the DNA.

**Options :**

1.

- ✘  
2. Adenylate residues are at 5' end of template
- ✘  
3. The RNA polymerase I does not transcribe rRNAs
- ✘  
4. Small nuclear RNA's are transcribed by RNA polymerase II

**Question Number : 37 Question Id : 3426041797 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Which DNA fragment of a vector that helps in identifying and eliminating non-transformant cells and permit the growth of transformant cells?

**Options :**

- ✘  
1. Ori
- ✘  
2. Cloning site



Salactable marker

3.

Cosmid

4.

**Question Number : 38 Question Id : 3426041798 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**





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

Assertion (A): Chromogenic substrates give blue coloured colonies if the plasmid does not have an insert.

Reason(R) : Recombinant colonies produce colour in presence of the chromogenic substrates due to the presence of  $\beta$  galactosidase.

The correct option among the following is:

**Options :**

1.  (A) is true, (R) is true and (R) is the correct explanation for (A)
2.  (A) is true, (R) is true but (R) is not the correct explanation for (A)
3.  (A) is true but (R) is false
4.  (A) is false but (R) is true

**Question Number : 39 Question Id : 3426041799 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Choose the wrong statement

**Options :**

- ✓ Bacterial Insulin is now made in human pancreas
- 1.
- ✗ A and B chains of human insulin are produced separately by bacterial genome
- 2.
- ✗ DNA sequences corresponding to A and B chains of human insulin were introduced into bacterial plasmid
- 3.
- ✗ Specific mRNA of the nematodes have been silenced by *dsRNA*
- 4.

**Question Number : 40 Question Id : 3426041800 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Assertion (A) : Hybrid breeding led to the development of high yielding bajra with resistance to water stress.

Reason (R) : In Millet crops, yield is low under drought conditions.

The correct option among the following is:

**Options :**

✗

(A) is true, (R) is true and (R) is the correct explanation for (A)

1.

(A) is true, (R) is true but (R) is not the correct explanation for (A)

2.

(A) is true but (R) is false

3.

(A) is false but (R) is true

4.

## Zoology

<b>Section Id :</b>	34260437
<b>Section Number :</b>	2
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	40
<b>Number of Questions to be attempted :</b>	40
<b>Section Marks :</b>	40
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	34260437
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 41 Question Id : 3426041801 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

One of the following is an example for ex-situ conservation

**Options :**

1.

National park

✓ Zoological park

2.

✗ Sanctuaries

3.

✗ Biosphere reserves

4.

**Question Number : 42 Question Id : 3426041802 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Organisms living in constant environmental conditions get

**Options** ✗ Species extinction

1.

✓ Niche specialisation

2.

✗ Organisational protection

3.

Ex-situ conservation

4.

**Question Number : 43 Question Id : 3426041803 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Statement I : Alpha diversity is the species diversity between two adjacent ecosystems and is obtained by comparing the number of taxa unique to each of the ecosystems.

Statement II : Gamma diversity is the measure of the overall diversity for different ecosystems within an ecological region.

**Options :**

1. ✖ Both statement I and statement II are true
2. ✖ Both statement I and statement II are false
3. ✖ Statement I is true but statement II is false
4. ✔ Statement I is false but statement II is true

**Question Number : 44 Question Id : 3426041804 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Principal type of symmetry in triploblastic animals

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**Options :**

- ✘ Asymmetry  
1.
- ✘ Radial  
2.
- ✔ Bilateral  
3.
- ✘ Biradial  
4.

**Question Number : 45 Question Id : 3426041805 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0**

Match the following

<b>Connective tissue</b>	<b>Example</b>
A) Dense regular connective tissue	I) Dermis
B) Dense irregular connective tissue	II) Whortan's Jelly
C) Elastic connective tissue	III) Lymphoid organs
D) Mucus connective tissue	IV) Tendon
	V) Vocal cords

The correct match is

**Options :**

1.

2.

A	B	C	D
II	V	I	IV

3.

4.

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A	B	C	D
IV	III	V	II

✘

A	B	C	D
IV	I	V	II

✔

A	B	C	D
III	IV	I	II

**Question Number : 46 Question Id : 3426041806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Assertion (A): Skeletal muscles have very limited power of regeneration

Reason (R): Satellite cells are present in them.

The correct option among the following is

**Options :**

- ✓ (A) is true, (R) is true and (R) is the correct explanation for (A)
- ✗ (A) is true, (R) is true but (R) is not the correct explanation for (A)
- ✗ (A) is true but (R) is false
- ✗ (A) is false but (R) is true

**Question Number : 47 Question Id : 3426041807 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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The following are the various parts of reproductive system of *Pheretima*

- A. Testes
- B. Accessory glands
- C. Spermathecae
- D. Ovaries

Arrange them in a correct sequence from anterior end to posterior end.

Options: A – B – C – D

✘

1.

✘

B – D – A – C

2.

✔

C – A – D – B

3.

✘

D – A – C – B

4.

Question Number : 48 Question Id : 3426041808 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Function of comb plates of ctenophores is

Options :

✘

1. Excretion

2. Locomotion

3. ✘ Food collection

4. ✘ Respiration

**Question Number : 49 Question Id : 3426041809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Assertion (A): Heart of fishes is called branchial heart

Reason (R): It receives deoxygenated blood from body parts

The correct option among the following is

**Options :**

1. ✘ (A) is true, (R) is true and (R) is the correct explanation for (A)

2. ✔ (A) is true, (R) is true but (R) is not the correct explanation for (A)

3. ✘ (A) is true but (R) is false

(A) is false but (R) is true

4.

**Question Number : 50 Question Id : 3426041810 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Match the following

Zoological name	Common name
A) <i>Ornithorhyncus</i>	I) Flying fox
B) <i>Pteropus</i>	II) Kangaroo
C) <i>Panthera</i>	III) Blue whale
D) <i>Macropus</i>	IV) Tiger
	V) Duck billed platypus

The correct match is


**Options :**

1. ✘


A	B	C	D
V	III	IV	II

2. ✘

A	B	C	D
II	IV	I	V

3. 

A	B	C	D
V	I	IV	II

4. 




A	B	C	D
III	V	II	IV

**Question Number : 51 Question Id : 3426041811 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Statement I: The binary fission of *Euglena* is called homothetogenic fission because the daughter euglenae are like mirror images.

Statement II: Binary fission in *Paramecium* is known as perkinetal fission because it occurs at right angles to the kineties.

**Options :**

1.  Both statement I and statement II are true
2.  Both statement I and statement II are false
-  Statement I is true but statement II is false

3.

4.



Statement I is false but statement II is true





Question Number : 52 Question Id : 3426041812 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

*Actinophrys* has

Options :

1.  Lobopodia
2.  Filopodia
3.  Reticulopodia
4.  Heliopodia

Question Number : 53 Question Id : 3426041813 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Identify the organism which did not cause ringworm

**Options :**

1.

✘ *Trichophyton*

2.

✘

*Epidermophyton*

3.

✔

*Trichonympha*

4.

**Question Number : 54 Question Id : 3426041814 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Statement I: *Wuchereria* exhibits nocturnal periodicity

Statement II: Filarial worms are described as ovoviviparous organisms

**Options :**

✘

Both statement I and statement II are true

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.

**Question Number : 55 Question Id : 3426041815 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0**

Identify the tranquilizer

**Options:**

✘ Barbiturates

1.

✔ Benzodiazepines

2.

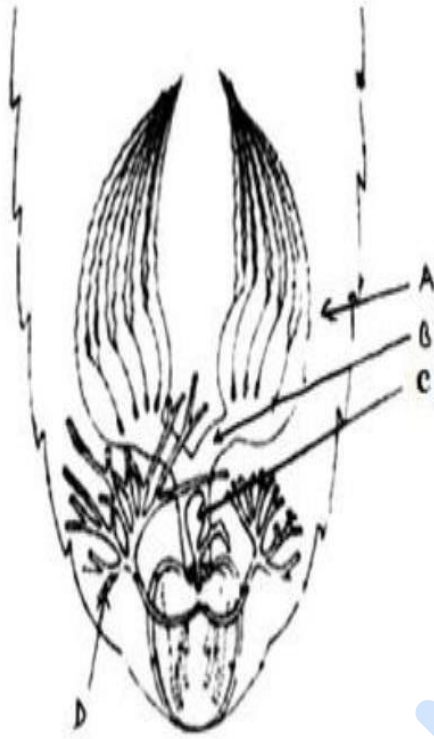
✘ Amphetamines

3.

✘ Charas

4.

**Question Number : 56 Question Id : 3426041816 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0**



Observe the above diagram of female reproductive system of cockroach and identify A, B, C and D

**Options :**

A                      B                      C                      D

Oviduct    Ovariole    Gonapophysis    Spermathecae

1. ✖

A                      B                      C                      D

Ovariole    Oviduct    Genital pouch    Conglobate gland

2. ✖

A

B

C

D

Germanium

Vagina

Phallic gland

Utricular gland

3. ✖

A

B

C

D

4. ✓
- |       |         |              |                    |
|-------|---------|--------------|--------------------|
| Ovary | Oviduct | Spermathecae | Colleterial glands |
|-------|---------|--------------|--------------------|

**Question Number : 57 Question Id : 3426041817 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

In corpora adiposa of cockroach, function of oenocytes is

**Options :**

1. ✘ Store food
2. ✘ Contain symbiotic bacteria
3. ✓ Store lipids
4. ✘ Store uric acid

**Question Number : 58 Question Id : 3426041818 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Number of rectal papillae present in cockroach

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**Options :**

- ✘ Three  
1.
- ✔ Six  
2.
- ✘ Nine pairs  
3.
- ✘ Six pairs  
4.

**Question Number : 59 Question Id : 3426041819 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Population density of an insect population increases from 40 to 50 in one month. If death rate during that period is 0.15, what is the birth rate?

**Options :**

- ✘ 0.25  
1.
- ✘

2.

0.5

3.

0.8

0.4

4. ✓

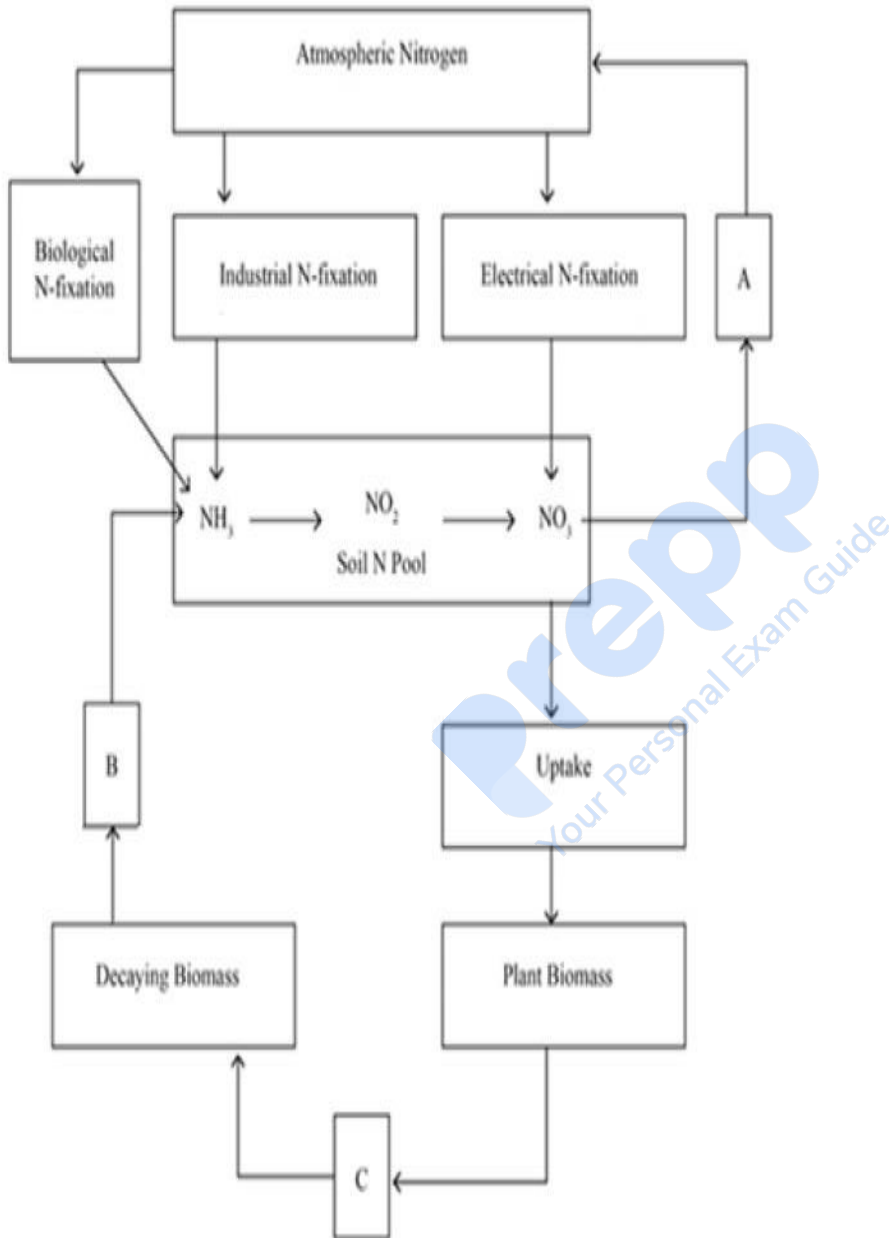
**Question Number : 60 Question Id : 3426041820 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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Study the following illustration of nitrogen cycle and identify A, B and C in it.



**Options :**

1. ✘

A	B	C
Denitrification	Producer biomass	Decomposing

2. ✘

A	B	C
Ammonification	Denitrification	Nitrification

3. ✔

A	B	C
Denitrification	Ammonification	Animal biomass

4. ✘

A	B	C
Nitrification	Denitrification	Recycling

Question Number : 61 Question Id : 3426041821 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
 Correct Marks : 1 Wrong Marks : 0

Match the following

Pollutant	Control
A) Particulates	I) Catalytic converters
B) Emissions of automobiles	II) Incinerators
C) Sulphur dioxide	III) Electrostatic precipitator
D) Hospital wastes	IV) Cooling towers
	V) Scrubbers

The correct match is

**Options :**

A	B	C	D
III	IV	V	II

1.

A	B	C	D
II	V	I	III

2.

3.

4.

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✘

✘

A      B      C      D

✓ III      I      V      II

A	B	C	D
IV	I	II	V

**Question Number : 62 Question Id : 3426041822 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Match the following

List-I	List-II
A) Moist body wall	I) Insects
B) Tracheal system	II) Amphibian larvae
C) Book lungs	III) Earthworms
D) Gills	IV) Aves
	V) Spiders

The correct match is

**Options :**

A            B            C            D

III          I            V            IV

1.

2.

A	B	C	D
III	I	V	II

3. ✘

A	B	C	D
II	V	I	III

4. ✘

A	B	C	D
IV	II	III	I

Question Number : 63 Question Id : 3426041823 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
 Correct Marks : 1 Wrong Marks : 0

Alveoli are lined by

Options :  
 ✘ Simple columnar epithelium

1.

✘

Squamous epithelium

## Endothelium

2.

3.

4.

## Transitional epithelium

**Question Number : 64 Question Id : 3426041824 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Identify the factor which starts extrinsic pathway of blood clotting

**Options :**

1.  Factor VII
2.  Factor X
3.  Factor XII
4.  Factor XIII

**Question Number : 65 Question Id : 3426041825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Most of the Angiotensin converting enzyme is present in

**Options :**

1.

Kidney



Liver

2.



Lungs

3.



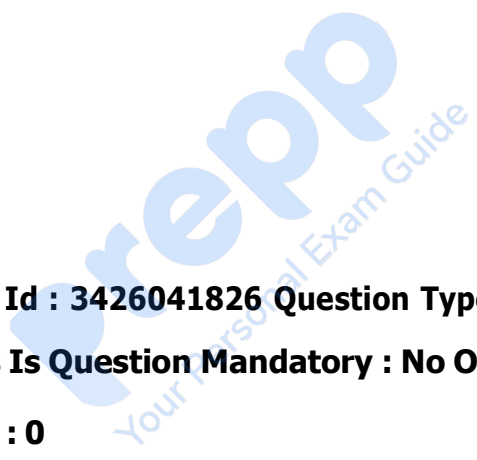
Heart

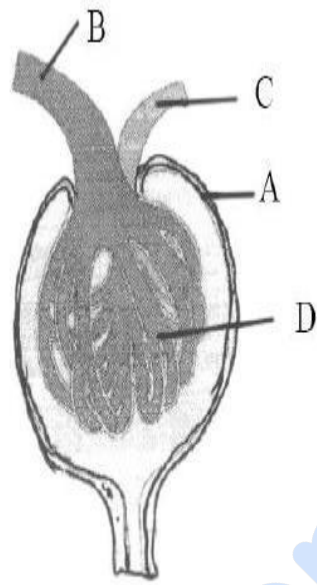
4.

**Question Number : 66 Question Id : 3426041826 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**


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






Identify A, B, C and D in the above diagram of Malpighian body of nephron.


**Options :**

1. 


A	B	C	D
Bowman's capsule	Afferent arteriole	Efferent arteriole	Glomerulus

2. 

A	B	C	D
Bowman's capsule	Efferent arteriole	Afferent arteriole	Renal tubule

3. 

A	B	C	D
Cortex	Renal artery	Renal vein	PCT

4. 


A	B	C	D
Glomerulus	Renal vein	Renal artery	DCT

**Question Number : 67 Question Id : 3426041827 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Muscle fatigue is caused due to accumulation of this substance in the muscle

 Aspartic acid

**Options :**

1.

2.

Acetyl choline

3. ✘

Phenyl pyruvate

4. ✘

**Question Number : 68 Question Id : 3426041828 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Assertion (A): Impulse transmission across electrical synapse is always faster than that of chemical synapse.

Reason (R): In electrical synapse, pre and post synaptic membranes are in very close proximity and have links called gap junctions.

The correct option among the following is

**Options :**

1. ✓ (A) is true, (R) is true and (R) is the correct explanation for (A)

1.

(A) is true, (R) is true but (R) is not the correct explanation for (A)

2. ✘

✘

3.

(A) is true but (R) is false

4.

(A) is false but (R) is true

**Question Number : 69 Question Id : 3426041829 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Ductus sylvius connects

**Options :**

1. ✘ Lateral ventricles and diacoel
2. ✘ Olfactory ventricles and lateral ventricles
3. ✔ Diacoel and fourth ventricle
4. ✘ Fourth ventricle and central canal

**Question Number : 70 Question Id : 3426041830 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Life saving hormone is

**Options :**

✘

1.

## Thyroxine

✘ Adrenalin

2.



Cortisol

3.



Aldosterone

4.

**Question Number : 71 Question Id : 3426041831 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Study the following and pick up the correct combinations

S.No	Ductless Gland	Hormone	Function
I)	Thyroid	Thyroxine	Regulation of basal metabolic rate
II)	Parathyroid	Calcitonin	Lowers calcium in blood
III)	Pineal	ADH	Darkening of skin
IV)	Pituitary	Prolactin	Enlargement of mammary glands

✘ Options : II

II III

1.

2.

3.



I, IV

✘ III, IV

4.

**Question Number : 72 Question Id : 3426041832 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Statement I: Mature B-cells synthesise various types of antibodies which are displayed on their membranes.

Statement II: Antigenic site that binds to an antibody is called epitope

**Options :**



Both statement I and statement II are true

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. ✖

**Question Number : 73 Question Id : 3426041833 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Pick up the mismatched pair from the following:

**Options :**

1. ✘ Monocytes — Blood
2. ✔ Kupffer cells — Pancreas
3. ✘ Microglia — Brain
4. ✘ Osteoclasts — Bone

**Question Number : 74 Question Id : 3426041834 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Placenta of human being is

- I) Yolk sac placenta
- II) Chorioallantoic placenta
- III) Zonary placenta
- IV) Discoidal placenta
- V) Haemochorial placenta
- VI) Indeciduate placenta
- VII) Deciduate placenta

**Options :**

1.

2. ✘ I, III, V, VII

3. ✘ II, III, IV, VI

4. ✘ I, II, III, IV

Question Number : 75 Question Id : 3426041835 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Causative organism of cervical cancer is

Options :

1. ✘ *Neisseria*

2. ✔ Human papilloma virus

3. ✘ Herpes simplex virus

✘





## *Treponema*

4.

**Question Number : 76 Question Id : 3426041836 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Rh – antibodies are following type

**Options :**

1.  Ig-D
2.  Ig-G
3.  Ig-M
4.  Ig-A

**Question Number : 77 Question Id : 3426041837 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Study the following statements regarding human genome project.

- I. Average gene consists of 3000 base pairs
- II. 50 percent of the genome codes for proteins
- III. Chromosome 1 has highest number of genes
- IV. Repeated sequences make up small portion of human genome

Which of the above are correct?

**Options :**

1.

I and II

✘ II and III

2.

✔ I and III

3.

✘ III and IV

4.

**Question Number : 78 Question Id : 3426041838 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

A woman (whose father is haemophilic and mother is homozygous normal) married a normal man and had two sons and two daughters. What are the chances of their sons being haemophilic?

**Options 50%**

✔

1.

✘

2.

100%

3.

25%

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75%

4. ✘

**Question Number : 79 Question Id : 3426041839 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical****Correct Marks : 1 Wrong Marks : 0**

The selective breeding of animals for a desired feature by mating them within closely related line.

**Options :**

✘ close breeding

1.

✔ line breeding

2.

✘ out breeding

3.

✘ cross breeding

4.

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**Question Number : 80 Question Id : 3426041840 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Pick up the mismatch pair

**Options :**

1. Attenuated whole agent vaccine — Mumps
2. Inactivated whole agent vaccine — Polio
3. Toxoid — Diphtheria
4. Inactivated whole agent vaccine — Rubella

**Physics**

<b>Section Id :</b>	34260438
<b>Section Number :</b>	3
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	40
<b>Number of Questions to be attempted :</b>	40
<b>Section Marks :</b>	40
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes

**Sub-Section Number :**

1

**Sub-Section Id :**

34260438

**Question Shuffling Allowed :**

Yes



**Question Number : 81 Question Id : 3426041841 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

- (A) Ratio of relative strength of gravitational to weak force is nearly  $10^{-3}$
- (B) Ratio of relative strength of gravitational to weak force is less than  $10^{-3}$
- (C) Ratio of relative strength of strong nuclear to electromagnetic force is nearly  $10^2$
- (D) Ratio of relative strength of strong nuclear to electromagnetic force is nearly  $10^{-2}$

Which of the following is true?

**Options :**

1.  A and B are true
2.  B and C are true
3.  B and D are true
4.  A and D are true

**Question Number : 82 Question Id : 3426041842 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

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Which of the following equation is dimensionally inconsistent?

Here

$$[l] = [l_0] = L$$

$$[m] = [m_0] = M$$

**Options :**

✓  $l = l_0 \frac{\sin(m)}{\sin(m_0)}$

1.

✗  $l = l_0 \sin(m/m_0) / \cos(m/m_0)$

2.

✗  $l = l_0 \log(m/m_0) / \sin(m/m_0)$

3.

✗  $l = l_0 \log\left(\frac{m}{m+m_0}\right) / \log(m/m_0)$

4.

**Question Number : 83 Question Id : 3426041843 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

A particle is moving along the positive x-axis as  $x = a(t-3) + b(t-3)^2 + 4(t-3)$   
which of the following is true?

**Options :**

The initial velocity of the particle is  $a-2b + 4$

✘

1.

✔

The acceleration of the particle is  $2b$

2.

✘

The particle is at origin at  $t = 4$

3.

✘

The acceleration of particle is  $6b$

4.

**Question Number : 84 Question Id : 3426041844 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

A car travels the first third of a distance with a speed 60 kmph, the second third at 10 kmph and the last third at speed  $v$ . If the mean speed over the entire distance is 5 m/s then the value of  $v$  in kmph is

**Options :**

✘

10

1.

✔

2.

20

3.

30

40

4. ✘

**Question Number : 85 Question Id : 3426041845 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical****Correct Marks : 1 Wrong Marks : 0**

A racing car travelling on a circular race track starts decelerating. Identify the incorrect statement from the following

**Options :**

1. ✘ tangential acceleration is non-zero
2. ✘ radial acceleration is directed towards the centre
3. ✓ angular velocity remains constant
4. ✘ the direction of angular momentum remains constant.

**Question Number : 86 Question Id : 3426041846 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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A rocket starts from rest and accelerates with  $g$ . When speed becomes  $V_0$ , the engine is switched off. What is the average speed from ground till it reaches a stop?

( $g \equiv$  acceleration due to gravity)

**Options :**

✘  $\frac{V_0}{2\sqrt{2}}$

1.

✔  $\frac{V_0}{2}$

2.

✘  $\frac{2V_0}{3}$

3.

✘  $\frac{V_0}{\sqrt{2}}$

4.

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**Question Number : 87 Question Id : 3426041847 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

A machine gun fires five bullets per second into a target. The mass of each bullet is 5gm. If the average force required to hold the gun in position is 12.5 N, then what is the speed ( $S$  in m/s) of each bullet & what is the power ( $P$  in kW) delivered to the each bullet?

**Options :**

✘  $S = 2500, P = 6.250$

1.

✘  $S = 2500, P = 3.125$

2.

✔  $S = 500, P = 3.125$

3.

✘  $S = 500, P = 6.250$

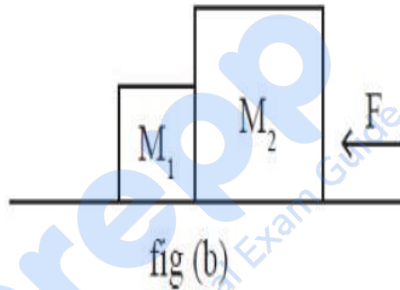
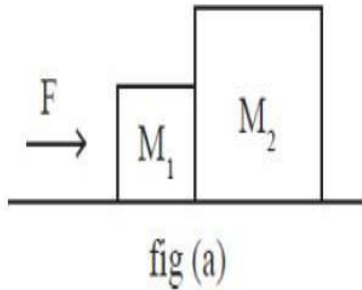
4.

**Question Number : 88 Question Id : 3426041848 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0**

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Two masses  $M_1$  &  $M_2$  are placed in contact with each other on a frictionless table

- i) A force  $\vec{F}$  is applied as in fig (a). Let  $F_1$  denotes the force on  $M_1$  due to  $M_2$ .
- ii) A force of the same magnitude  $\vec{F}$  is applied as in fig (b). Let  $F'_1$  denotes the force on  $M_1$  due to  $M_2$ .
- The ratio  $|F_1 / F'_1|$  is



**Options :**

✓  $M_2/M_1$

1.

✗  $M_1/M_2$

2.

✗  $M_1/(M_1+M_2)$

3.

✗  $M_2/(M_1+M_2)$

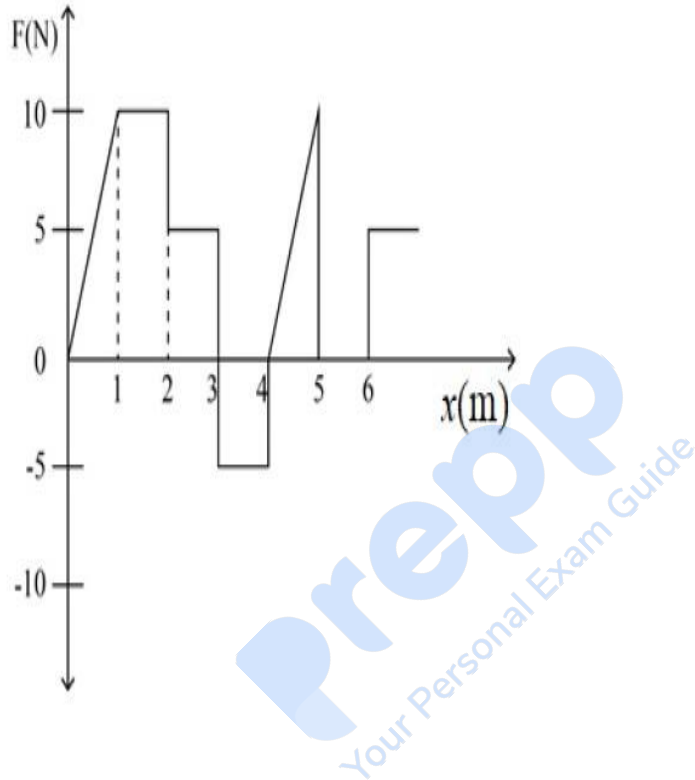
4.

**Question Number : 89 Question Id : 3426041849 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

The relationship between the force  $F$  and position  $x$  of a particle is as shown in the following diagram. The work done in displacing the particle from  $x = 0$  m to 5 m will be?



**Options:** 30 J

1.



15 J

2.



25 J

3.



20 J

4.

**Question Number : 90 Question Id : 3426041850 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical****Correct Marks : 1 Wrong Marks : 0**

A car of mass 'm' starts from rest and accelerates such that its instantaneous velocity is proportional to  $\sqrt{t}$ , where t is time in seconds. What should be the instantaneous power delivered to the car if its instantaneous velocity is 20 m/s after 10 seconds.

**Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.**

30 kW

**Options :**

1.

2.

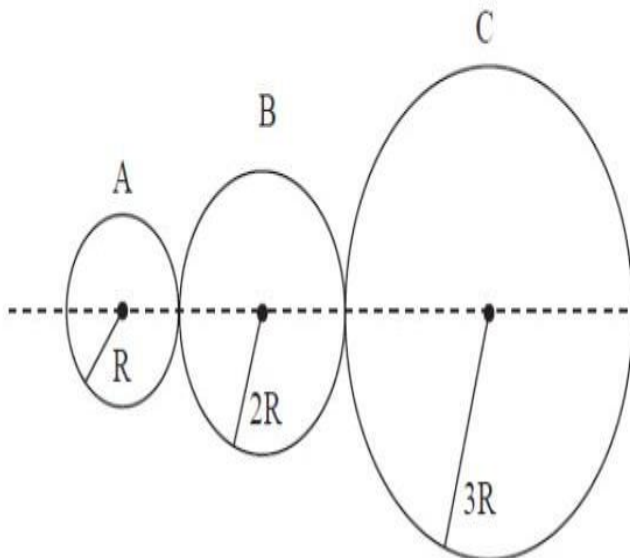
50 kW

3. 20 kW  
40 kW

4.

**Question Number : 91 Question Id : 3426041851 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical****Correct Marks : 1 Wrong Marks : 0**

Three spheres A, B and C each of mass 1 kg and radii  $R$ ,  $2R$  and  $3R$  respectively are kept touching each other as shown in the figure. Assuming the centres of the spheres are on a straight line, the distance of centre of mass of the system from the centre of sphere A is



0.5 R

**Options :**

1.

3R



2.

4.5 R



3.

4R



4.

**Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.**

**Question Number : 92 Question Id : 3426041852 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

If the sum of external forces acting on a system is zero, then the centre of mass

**Options:** may move with uniform speed



1.

will always be at rest



2.

will always rotate with constant angular acceleration



3.

may move with constant acceleration

4. ✖

**Question Number : 93 Question Id : 3426041853 Question Type : MCQ Option Shuffling : Yes**

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**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

A cylinder of mass  $m$  is allowed to roll on a smooth horizontal table with a spring of spring constant  $k$  attached to it so that it executes SHM about the equilibrium position.

What is the time period,  $T$  of oscillations?

**Options :**

✘  $T = 2\pi\sqrt{\frac{m}{k}}$

1.

✘  $T = 2\pi\sqrt{\frac{2m}{3k}}$

2.

✔  $T = 2\pi\sqrt{\frac{3m}{2k}}$

3.

✘  $T = 2\pi\sqrt{\frac{3m}{4k}}$

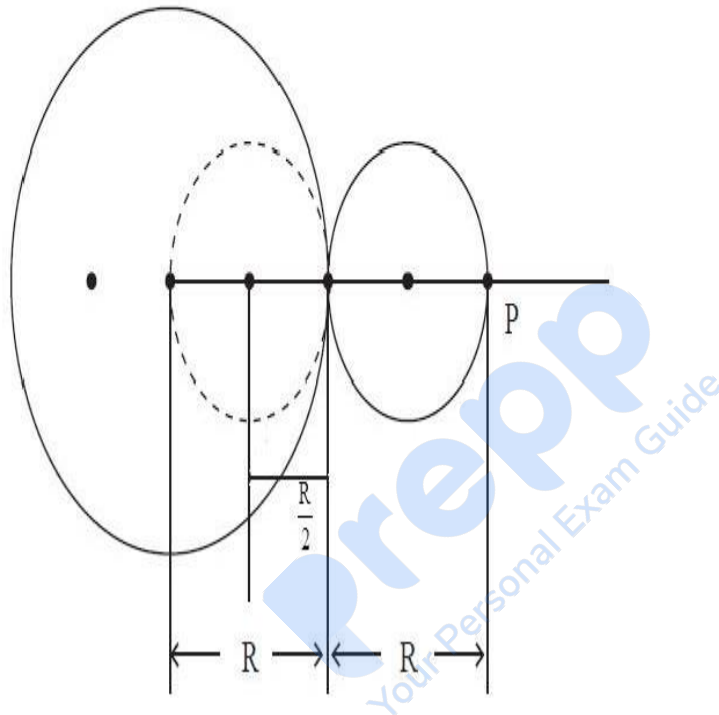
4.

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**Question Number : 94 Question Id : 3426041854 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

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A sphere of uniform density, mass  $M$ , and radius  $R$  is placed at the origin. A sphere of radius  $R/2$  is scooped out and placed outside as shown in fig. The dotted sphere represents the hollow. The magnitude of gravitational force on a point mass 'm' placed at point P is approximately equal to



**Options :**

$$\frac{5}{16} \frac{GMm}{R^2}$$

1.

$$\frac{15}{36} \frac{GMm}{R^2}$$

2.

$$\frac{25}{16} \frac{GMm}{R^2}$$

3.

4.

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✘

✘

✘

$$\frac{25}{36} \frac{GMm}{R^2}$$

**Question Number : 95 Question Id : 3426041855 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

The radius of a sphere is found to have reduced by 0.01 %, when measured at a depth 'H' of sea. If the bulk modulus of elasticity of the material of sphere is  $4 \times 10^{10} \text{N/m}^2$  and density of water is  $1000 \text{kg/m}^3$ , find the value of 'H' ( use  $g = 10 \text{ m/s}^2$ )

**Options :**

1. ✘ 1000 m
2. ✔ 1200 m
3. ✘ 2000 m
4. ✘ 400 m

**Question Number : 96 Question Id : 3426041856 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

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The excess pressure inside a soap bubble of radius 10mm is balanced by a liquid column of 0.04 cm. Determine the density of liquid (surface tension of soap bubble is  $0.03 \text{ Nm}^{-1}$  and  $g = 10 \text{ m/s}^2$ )

**Options :**  $\times 10^3 \text{ kg m}^{-3}$



1.



$$4 \times 10^3 \text{ kg m}^{-3}$$

2.



$$6 \times 10^3 \text{ kg m}^{-3}$$

3.



$$8 \times 10^3 \text{ kg m}^{-3}$$

4.

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**Question Number : 97 Question Id : 3426041857 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

Two soap bubbles of radii  $R$  and  $2R$  (in vacuum) coalesce under isothermal conditions.

The radius of the new bubble is (surface tension of soap solution is  $2.5 \times 10^{-2} \text{ N/m}$ )

**Options :**



1.  $\sqrt{3} R$

2.  $\sqrt{5} R$

✘  $3R$

3.

✘  $\sqrt{2}R$

4.

**Question Number : 98 Question Id : 3426041858 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

1 gm of ice at  $0^\circ\text{C}$  is mixed with 2 gm of water at  $90^\circ\text{C}$ . Find the final temperature (specific heat capacity of water =  $1 \text{ cal / gm}^\circ\text{C}$  and latent heat of fusion of ice =  $80 \text{ cal/gm}$ )

**Options :**

✘  $20^\circ\text{C}$

1.

✔  $\frac{100}{3}^\circ\text{C}$

2.

✘  $\frac{40}{3}^\circ\text{C}$

3.

4. ✖ 30 °C

**Question Number : 99 Question Id : 3426041859 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

- (A) The energy emitted versus wavelength plot of a black body depends on the material of the black body
- (B) Emissivity of completely reflecting surface is zero
- (C) Emissivity is equal to (absorptive power)<sup>2</sup>
- (D) Black-body radiates more than normal body
- Which of the following is correct?

**Options :**

1. ✘ A & B are true
2. ✘ B & C are true
3. ✘ C & D are true
4. ✔ B & D are true

**Question Number : 100 Question Id : 3426041860 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

A tyre pumped to a pressure of 2 atmosphere, suddenly bursts. If the temperature of air before expansion is  $27^{\circ}\text{C}$ , then the final temperature of air is  $\left[ \text{use } \frac{C_p}{C_v} = 1.5, 2^{1/3} = 1.2 \right]$

**Options :**

1.

2. ✓  $-23^{\circ}\text{C}$

3. ✗  $-27^{\circ}\text{C}$

4. ✗  $27^{\circ}\text{C}$

**Question Number : 101 Question Id : 3426041861 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

What will be the efficiency of a Carnot engine if it takes heat from reservoir at  $100^{\circ}\text{C}$  and rejects heat to a sink at  $50^{\circ}\text{C}$ ?

**Note:** For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

**Options :**

1.  $0.6$

2. 0.5

3. 0.4

4. 0.3

**Question Number : 102 Question Id : 3426041862 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Relationship between pressure ( $P$ ) and kinetic energy ( $K.E.$ ) of ideal gas is

Options:  $P = \frac{2}{3} K.E.$



1.

$$P = \frac{1}{3} K.E.$$



2.

$$P = \frac{1}{2} K.E.$$



3.

$$P = 3K.E.$$



4.

**Question Number : 103 Question Id : 3426041863 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

A wave travelling on a string is described by  $y = \sqrt{\pi} \sin\left(10x - \pi t + \frac{\pi}{4}\right)$ . All the physical quantities are in SI units. The frequency of the wave is

**Options :**

- ✓ 0.5 Hz  
1.
- ✗  $\frac{\pi}{2}$  Hz  
2.
- ✗  $2\pi$  Hz  
3.
- ✗ 1 Hz  
4.

**Question Number : 104 Question Id : 3426041864 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

What power should the reading spectacles (lens) have for a person for whom the least distance is 50 cm (in dioptre)

**Options :**

- ✗ + 50  
1.
- ✓
- 50

+ 2

2.

3.

4.

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- 2

**Question Number : 105 Question Id : 3426041865 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

When light of wavelength 600 nm is used in Young's double slit experiment, 8 fringes are observed on the screen. If wavelength of light is changed to 400nm, how many fringes will be observed on the screen?

**Options :**

- ✓
- 1.
- ✗ 14
- 2.
- ✗ 16
- 3.
- ✗ 18
- 4.

**Question Number : 106 Question Id : 3426041866 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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An electrical charge distribution is given by volume charge density  $\rho(r) = \alpha r (0 \leq r \leq R)$  when  $r$  is the radial coordinate. Find the electric flux due to this distribution through a closed cylindrical surface of radius  $R$  enclosing the above charge distribution

**Options :**

1.   $\frac{4\pi}{\epsilon_0} \alpha R^4$
2.   $\frac{2\pi}{\epsilon_0} \alpha R^4$
3.   $\frac{\pi}{\epsilon_0} \alpha R^4$
4.   $\frac{\pi}{2\epsilon_0} \alpha R^4$

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**Question Number : 107 Question Id : 3426041867 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

What happens to the capacitance of a parallel plate capacitor if the area of its plate is tripled?

**Options :**

1.

The capacitance of a parallel plate capacitor is tripled.

- ✘
- 2. ✘ The capacitance of a parallel plate capacitor is doubled.
- ✘
- 3. ✘ The capacitance of a parallel plate capacitor is quadrupled.
- ✘
- 4. ✘ The capacitance of a parallel plate capacitor does not change.

**Question Number : 108 Question Id : 3426041868 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

The drift velocity of electrons in a conducting medium is due to

**Options :**

- ✘
- 1. ✘ motion of conduction electrons due to random collisions
- ✓
- 2. ✓ motion of conduction electrons due to electric field  $\vec{E}$
- ✘
- 3. ✘ repulsion to the conduction electrons due to inner electrons of ions

3.

collisions of conduction electrons with each other

4.

**Question Number : 109 Question Id : 3426041869 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

The magnitude of the magnetic field inside a solenoid of length 300 cm and made up of 450 turns is  $9 \times 10^{-3}$  T. The current carried by the solenoid is (assume the radius of solenoid  $\ll$  300 cm)

**Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.**

**Options :**

1.

2.

$$\frac{15}{\pi} \text{ A}$$

3.

4.

$$\frac{1.5}{\pi} \text{ A}$$

$$\frac{2}{\pi} \text{ A}$$

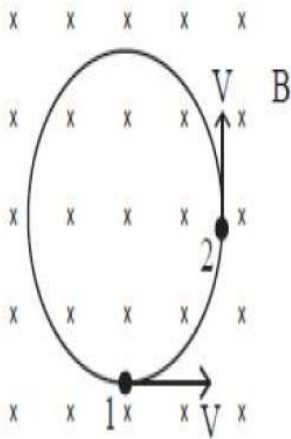
$$\frac{2.5}{\pi} \text{ A}$$

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**Question Number : 110 Question Id : 3426041870 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

A particle of charge  $q$  and mass  $m$  moves in a uniform magnetic field  $B$  with a speed  $V$ . The average acceleration for  $90^\circ$  turn as it moves from point 1 to 2 as shown in

figure is  $\alpha \left( \frac{qVB}{m} \right)$ . The value of  $\alpha$  is



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**Options :**

1.

$$\frac{2\sqrt{2}}{\pi}$$

2.

$$\pi$$

3.

4.

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✘ 0

✔

✘  $\frac{1}{\sqrt{2\pi}}$

1

**Question Number : 111 Question Id : 3426041871 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

The dip angle at point P on earth's surface is  $45^\circ$ . If the dip angle is changed by 1% then the change in horizontal component of earth's magnetic field is:

**Options :**

1. ✓  $-\frac{\pi}{4}\%$

2. ✗  $+\frac{\pi}{4}\%$

3. ✗  $-\frac{\pi}{6}\%$

4. ✗  $\frac{\pi}{6}\%$

**Question Number : 112 Question Id : 3426041872 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

A square loop of side 'a' and resistance R is placed with its face in the x-y plane. A uniform magnetic field of magnitude  $B_0 e^{-t/\tau}$ , where  $t$  is time &  $\tau$  is a constant, pointing in  $\sqrt{3}\hat{x} + \hat{z}$  direction is applied. The magnitude of emf in the loop at time  $\tau$  is

Options 1  $\frac{B_0 a^2}{4 e \tau}$

✘

1.

✓  $\frac{1 B_0 a^2}{2 e \tau}$

2.

✘  $\frac{B_0 a^2}{e \tau}$

3.

✘  $2 \frac{B_0 a^2}{e \tau}$

4.

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**Question Number : 113 Question Id : 3426041873 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

A pure inductor of 30.0 mH is connected to a source of 250 V. Find the inductive reactance (in  $\Omega$ ) and rms current (in A) in the circuit if the frequency of the source is 80Hz.

Options :  $4.8 \pi, \frac{90}{\pi}$

✘

1.

2.

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$$4.2\pi, \frac{60}{\pi}$$



$$4.8\pi, \frac{52}{\pi}$$

3.

$$4.2\pi, \frac{50}{\pi}$$



4.

Question Number : 114 Question Id : 3426041874 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Maxwell's equation are applicable for Electromagnetic waves of

Options :



All wavelengths

1.

Ultraviolet only



2.

Visible only



3.

Radio waves only

4.

**Question Number : 115 Question Id : 3426041875 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

An electron accelerated by a potential difference of 'V' possess a de Broglie wavelength  $\lambda$ . If the accelerating potential is increased by a factor 9. The de Broglie wavelength of electron will be approximately

**Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.**

**Options :**

1. 0.409 nm
2. 0.137 nm
3. 3.681 nm
4. 1.109 nm

**Question Number : 116 Question Id : 3426041876 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

The potential energy of the electron in the first excited state of the hydrogen atom is

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**Options :**

1.   $-3.4 \text{ eV}$
2.   $3.4 \text{ eV}$
3.   $-6.8 \text{ eV}$
4.   $6.8 \text{ eV}$

**Question Number : 117 Question Id : 3426041877 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

The graph of  $\ln\left(\frac{R}{R_0}\right)$  versus  $\ln A$  ( $R$ = radius of a nucleus and  $A$  = mass number)

is

**Options :** Straight line

1.  Straight line
2.  Exponential

2.

Parabola

3.

## Ellipse

4. ✘

**Question Number : 118 Question Id : 3426041878 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

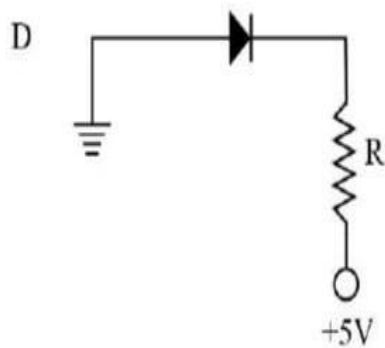
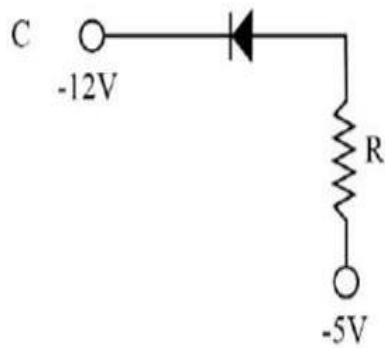
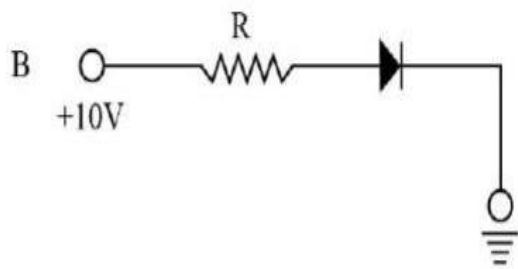
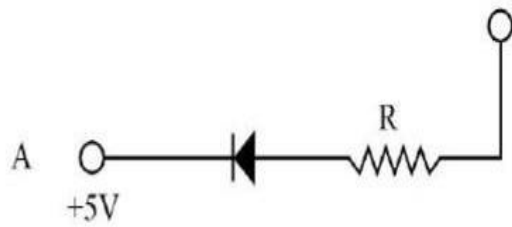
Identify a false statement from the following

**Options :**

- ✘
1. The number of electrons is equal to the number of holes in intrinsic semiconductors.
- ✓
2. Diodes can be used for rectifying a DC voltage input to obtain AC voltage.
- ✘
3. By changing the external applied voltage p-n – junction barrier can be changed.
- ✘
4. n – type semiconducting Si or Ge obtained by doping with pentavalent atoms.

**Question Number : 119 Question Id : 3426041879 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

In the following figure, identify the diodes which are reverse biased



**Options :**

A, B and D

1. ✖

2. ✖ B only

- ✘
- 3. A and C
- ✓
- 4. D only

**Question Number : 120 Question Id : 3426041880 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

In frequency modulated wave.

**Options** both frequency and amplitude vary with time

- ✘
- 1. both frequency and amplitude are constant
- ✘
- 2. frequency varies with time
- ✓
- 3. amplitude varies with time
- 4.

# Chemistry

**Section Id :** 34260439  
**Section Number :** 4  
**Section type :** Online

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<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	40
<b>Number of Questions to be attempted :</b>	40
<b>Section Marks :</b>	40
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	34260439
<b>Question Shuffling Allowed :</b>	Yes



**Question Number : 121 Question Id : 3426041881 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Among the following ions, the one with the highest value of ionic radius is

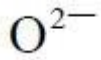
**Options :**

1.

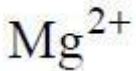
2.

3.

4. ✓



✗



**Question Number : 122 Question Id : 3426041882 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

✗



✗



In Millikan's oil drop experiment, the forces acting on the oil drop are?

Options:  gravitational and viscous only

✘

1.

gravitational, electrostatic and viscous only

2.

gravitational and electrostatic only

3.

✘

4.

gravitational only

Question Number : 123 Question Id : 3426041883 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The correct set of neutral oxides among the following are

Options:   $\text{Al}_2\text{O}_3$ , CO, NO

✘

1.

✘

2.

$\text{As}_2\text{O}_3$ ,  $\text{N}_2\text{O}$ ,  $\text{N}_2\text{O}_5$

✘

3.  $\text{Al}_2\text{O}_3$ ,  $\text{As}_2\text{O}_3$ ,  $\text{Li}_2\text{O}$

4.  $\text{CO}$ ,  $\text{N}_2\text{O}$ ,  $\text{NO}$

**Question Number : 124 Question Id : 3426041884 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

From the given pairs of elements, the correct set of elements that does not possess diagonal relationship is

**Options :**

1. ✘ B – Si, Nb – Ta

2. ✔ Li – Al, C – P

3. ✘ Mo – W, B – Si

4. ✘ Zr – Hf, Be – Al

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**Question Number : 125 Question Id : 3426041885 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Match the following

Column – I Compound	Column – II Hybridization
A) $\text{SF}_6$	I) $\text{dsp}^2$
B) $\text{PCl}_5$	II) $\text{d}^2\text{sp}^3$
C) $[\text{PtCl}_4]^{2-}$	III) $\text{sp}^3\text{d}^2$
	IV) $\text{sp}^3$
	V) $\text{sp}^3\text{d}$

The correct match is

Options :

1. 

A	B	C
III	I	V

2. 

A	B	C
III	V	I

3. 

A	B	C
IV	V	I

4. 

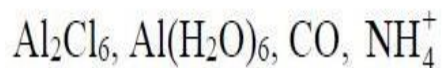
A	B	C
II	V	I

**Question Number : 126 Question Id : 3426041886 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

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The sum of the number of dative bonds present in all the given species are



Options :

- ✘
1. 5
- ✘
2. 7
- ✘
3. 8
- ✔
4. 10

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Question Number : 127 Question Id : 3426041887 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Among the following gases, the order of liquefiability is

- a)  $\text{SO}_2$
- b)  $\text{CO}_2$
- c)  $\text{CH}_4$
- d)  $\text{NH}_3$



**Options :**

1.

2.



✘



3.

✔



4.

Question Number : 128 Question Id : 3426041888 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The compressibility factor ( $Z$ ) of a gas is  $< 1$  at STP. Therefore

Options  $V_m < 22.4 \text{ L}$

✔

1.

✘

$$V_m = 44.8 \text{ L}$$

2.

✘

$$V_m > 22.4 \text{ L}$$

3.

✘

$$V_m = 11.2 \text{ L}$$

4.

**Question Number : 129 Question Id : 3426041889 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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The equivalent weight of  $\text{KMnO}_4$  in acidic and strongly alkaline medium, respectively, are,

**Options :**

- ✘ 158; 79
1. ✓ 31.6; 158
2. ✘ 158; 158
3. ✘ 31.6; 79
- 4.

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**Question Number : 130 Question Id : 3426041890 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

How many moles of electrons weigh one kg?

**Options :**

- ✘  $3 \times 10^4$
1. ✘  $6 \times 10^{23}$
- $1 \times 10^8$

2.

3.

4.



$$1.8 \times 10^6$$

**Question Number : 131 Question Id : 3426041891 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

For the formation of  $\text{NH}_3(\text{g})$  from its constituent elements at constant temperature and pressure, which of the following options is correct

**Options:**

1.   $\Delta H = 0$
2.   $\Delta H = \Delta U$
3.   $\Delta H > \Delta U$
4.   $\Delta H < \Delta U$

**Question Number : 132 Question Id : 3426041892 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Calculate the pH of a solution containing 0.2 M  $\text{CH}_3\text{COOH}$  and 0.1M  $\text{CH}_3\text{COONa}$ .

The  $K_a$  of  $\text{CH}_3\text{COOH} = 1.8 \times 10^{-5}$  ( $-\log(1.8 \times 10^{-5}) = 4.74$ )

**Options :**

1.

4.74



4.43

2.

5.01



3.



5.32

4.

Question Number : 133 Question Id : 3426041893 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Match the following

Acid	Ionization constant, $K_a$
A) Formic acid	I) $4.9 \times 10^{-10}$
B) Niacin	II) $1.5 \times 10^{-5}$
C) Hypochlorous acid	III) $1.8 \times 10^{-4}$
D) Hydrocyanic acid	IV) $3 \times 10^{-8}$

The correct match is

Options :

A	B	C	D
II	III	IV	I

1.

2. ✘

A	B	C	D
I	II	III	IV

3. ✔

A	B	C	D
III	II	IV	I

4. ✘

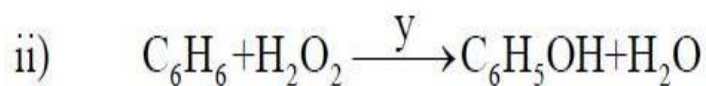
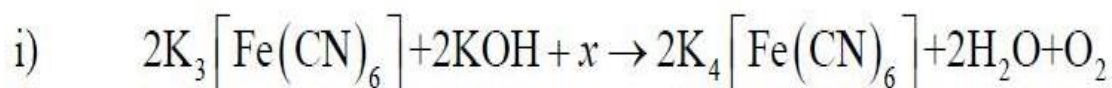
A	B	C	D
III	IV	I	II

Question Number : 134 Question Id : 3426041894 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The  $x$  and  $y$  in the following equations, respectively, are



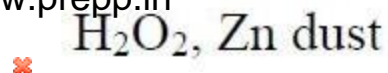
Options :

1. ✘  $FeSO_4, H_2O_2$

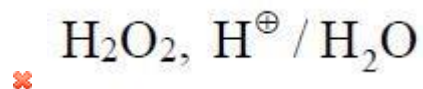
✔  $H_2O_2, FeSO_4$

2.

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3.



4.

**Question Number : 135 Question Id : 3426041895 Question Type : MCQ Option Shuffling : Yes**

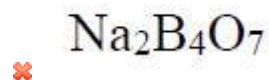
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

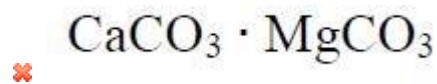
What is the chemical formula of carnallite?

Options:  $\text{KCl} \cdot \text{MgCl}_2 \cdot 6\text{H}_2\text{O}$

1.



2.



3.



4.

**Question Number : 136 Question Id : 3426041896 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

The Lewis acid in the following is

**Options :**

1.

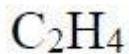


✘



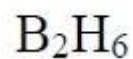
2.

✘



3.

✔



4.

Question Number : 137 Question Id : 3426041897 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The acidic oxide from below is

Options :

✘



1.

✔



2.

✘



3.

4. ✖ PbO

**Question Number : 138 Question Id : 3426041898 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

The correct statement / option about acid rain is

**Options:**

1.  The acid rain would not affect the fertility of the soil
2.  The acid rain contains HCl
3.  SO<sub>2</sub> and NO<sub>2</sub> are contributors to acid rain
4.  Acetic acid is the component of acid rain

**Question Number : 139 Question Id : 3426041899 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

The correct option among the following about hydrogen bonding is

- a) Hydrogen bond strength increases with the decrease of electronegativity of the atom connected to hydrogen
- b) Hydrogen bonding involves more than two atoms
- c) In general, intramolecular hydrogen bonding forms through five or six membered rings
- d) Hydrogen bonding is an electrostatic force

**Options :**

1.

- ✘
2. B and C
- ✘
3. A and C
- ✓
- C and D
- 4.

**Question Number : 140 Question Id : 3426041900 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

By which of the following reactions, methane can't be prepared

A = Wurtz reaction

B = Reduction of alkyl halides with zinc and dil. HCl

C = Kolbe's electrolysis

D = Catalytic hydrogenation of alkenes

**Options :**

- ✘
1. A, B & C
- ✘
2. B, C & D
- ✓
- A, C & D
- 3.
- ✘
- A, B & D

4.

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**Question Number : 141 Question Id : 3426041901 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

Which of the following is not associated with electrophilic aromatic substitution in a single-pot reaction?

**Options:** The formation of bromobenzene

- ✘
- 1.  The formation of para-hydroxy nitrobenzene from para-chloronitrobenzene and aq. NaOH
- 2.  The formation of benzenesulfonic acid
- 3.  The formation of nitrobenzene
- 4.

**Question Number : 142 Question Id : 3426041902 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

A compound crystallises in a hcp arrangement. The total number of voids present in 0.5 mole of the crystal is

✘

**Options :**

1. 1.0 N

✘ 0.5 N

2. ✓ 1.5 N

3. ✘ 2.0 N

4.

**Question Number : 143 Question Id : 3426041903 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Which of the following solution has the lowest osmotic pressure?

Options) ✘ 200 ml of 2 M NaCl solution

1. ✓ 200 ml of 1 M glucose solution

2. ✘ 200 ml of 2 M urea solution

3. ✘ 200 ml of 1 M KCl solution

4.

**Question Number : 144 Question Id : 3426041904 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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A 100 mL of aqueous solution contains 10 gm of urea. If the solvent is hypertonic with respect to a 100 mL glucose solution containing W gm of the compound. Which of the followings is correct?

**Options:**  $W_{\text{glucose}} = 10 \text{ gm}$

✘

1.

✔

$W_{\text{glucose}} < 30 \text{ gm}$

2.

✘

$W_{\text{glucose}} > 30 \text{ gm}$

3.

✘

$W_{\text{glucose}} < 10 \text{ gm}$

4.

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**Question Number : 145 Question Id : 3426041905 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

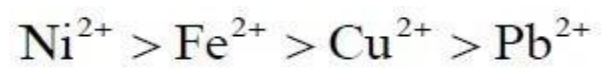
The correct order of  $E^0$  values of the given elements is  $(M^{2+} + 2e^- \rightarrow M(s))$

**Options:**  $\text{Cu}^{2+} > \text{Ni}^{2+} > \text{Pb}^{2+} > \text{Fe}^{2+}$

✘

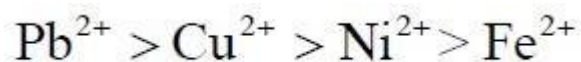
1.

✘



2.

3.



4. ✘

**Question Number : 146 Question Id : 3426041906 Question Type : MCQ Option Shuffling : Yes****Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical****Correct Marks : 1 Wrong Marks : 0**

$x_2(g) + y_2(g) \rightarrow 2xy(g)$  the experimental data indicates that rate =  $k[x_2][y_2]^{1/2}$ . The molecularity and the order of reaction, respectively, are

**Options :**1 and  $\frac{1}{2}$ 

1. ✘

2 and  $\frac{3}{2}$ 

2. ✔

2 and 1

3. ✘

 $\frac{3}{2}$  and  $\frac{2}{3}$ 

4. ✘

**Question Number : 147 Question Id : 3426041907 Question Type : MCQ Option Shuffling : Yes**  
**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**  
**Correct Marks : 1 Wrong Marks : 0**

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Which of the following is not true for physical adsorption?

Options :

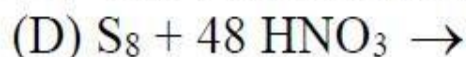
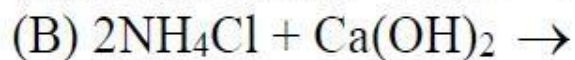
- ✘ It is reversible
1. ✓ It needs activation energy
2. ✘ It occurs in the form of multilayer adsorption
3. ✘ It increases with increase of partial pressure of the adsorbate gas
- 4.

Question Number : 148 Question Id : 3426041908 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

From the given reactions those produce ammonia are



Options (A) and (B)



1.

(A) and (C)

2.

✘ (C) and (D)

3.

✘ (A) and (D)

4.

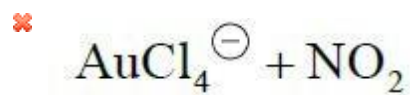
**Question Number : 149 Question Id : 3426041909 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

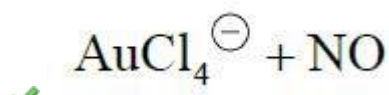
**Correct Marks : 1 Wrong Marks : 0**

The mixture of three parts of concentrated HCl and one part of concentrated HNO<sub>3</sub> is reacted with gold metal. The main products of reaction are

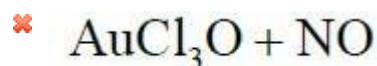
**Options :**



1.



2.



3.



4.

**Question Number : 150 Question Id : 3426041910 Question Type : MCQ Option Shuffling : Yes**





**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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The colour of  $\text{Xe}^{\oplus}\text{PtF}_6^{\ominus}$  is

Options :

1.  Green
2.  Blue
3.  Yellow
4.  Red

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Question Number : 151 Question Id : 3426041911 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of unpaired electrons are present in  $[\text{CoF}_6]^{3-}$  is

Options:

1.  4
-  0

2.

1

3.

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3

4. ✘

**Question Number : 152 Question Id : 3426041912 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

In the following set of compounds, the pair with same magnetic moment is

**Options :**

✘  $\text{FeCl}_2$  and  $\text{MnCl}_2$

1.

✘  $\text{CoCl}_2$  and  $\text{MnCl}_2$

2.

✔  $\text{VOCl}_2$  and  $\text{CuCl}_2$

3.

✘  $\text{ZnCl}_2$  and  $\text{MnCl}_2$

4.

**Question Number : 153 Question Id : 3426041913 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

DNA finger printing can be used

- A) to determine paternity of an individual
- B) in forensic lab for identification of criminal
- C) making tattoo design
- D) make copies of DNA

Options: (A) and (B)



1.



(B) and (C)

2.



(C) and (D)

3.



(A) and (D)

4.

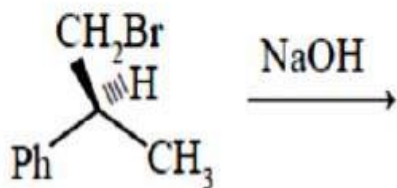
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Question Number : 154 Question Id : 3426041914 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The correct statement about the following chemical reaction is



**Options :**

It is an  $\text{SN}^2$  reaction with inversion of configuration of the reactant

1.

2. ✓ It is an  $SN^2$  reaction with retention configuration of the reactant

3. ✗ It is an  $SN^1$  reaction with retention of configuration of the reactant

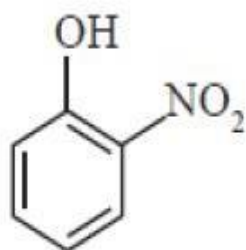
4. ✗ It is an  $SN^1$  reaction with racemisation

Question Number : 155 Question Id : 3426041915 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

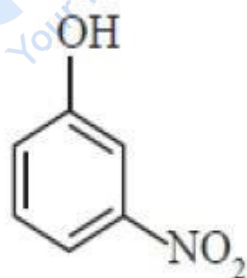
The correct order of acidity of the following is



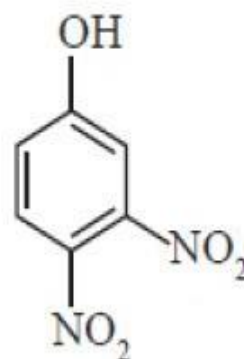
(I)



(II)



(III)



(IV)

Options :

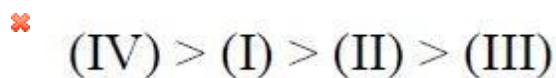
(I) > (IV) > (II) > (III)

1. ✗

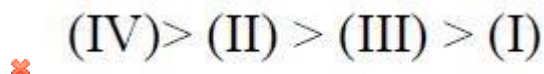
✓ (IV) > (II) > (I) > (III)

2.

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3.



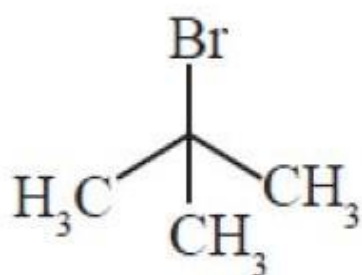
4.

Question Number : 156 Question Id : 3426041916 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The major product formed in the following reactions



i) MeONa

ii) B<sub>2</sub>H<sub>6</sub>



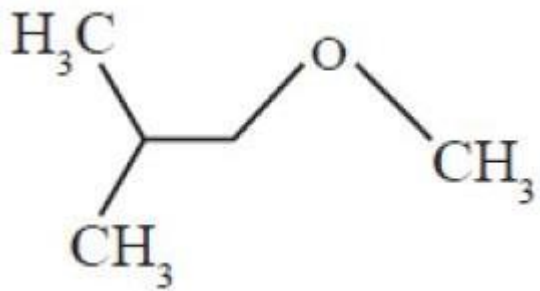
iii) NaOH/H<sub>2</sub>O<sub>2</sub>

iv) Na/dry ether

v) CH<sub>3</sub>I

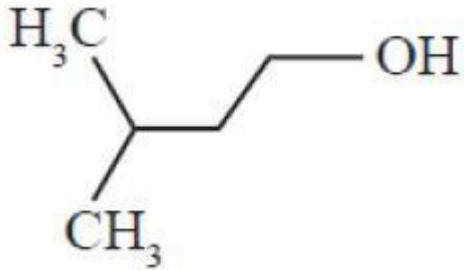
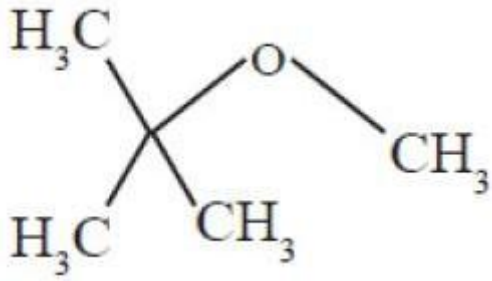
Options :





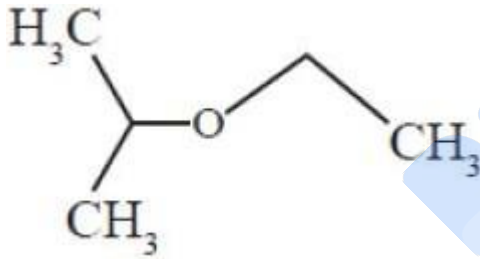
1.

2.



✘

3.



✘

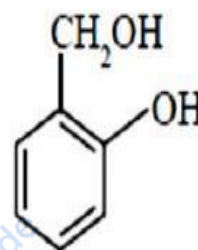
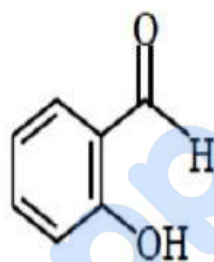
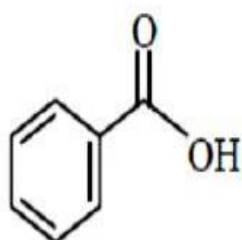
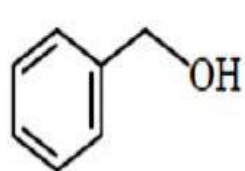
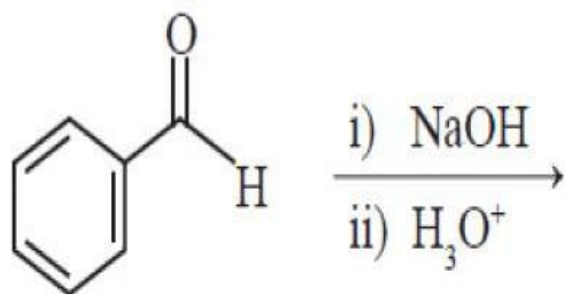
4.

Question Number : 157 Question Id : 3426041917 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Identify the product(s) formed in the given reaction



Options :

1. ✘ (A) and (C)

1.

2. ✘ (B) and (C)

2.

3. ✘ (C) and (D)

3.

4. ✔ (A) and (B)

4.

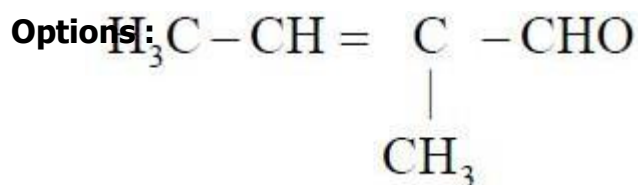
**Question Number : 158 Question Id : 3426041918 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

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

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Which one of the following is not formed in cross aldol condensation of ethanal and propanal?

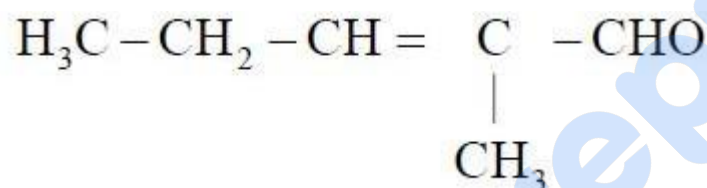
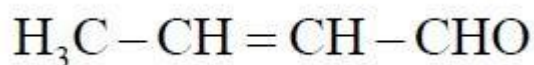


✘

1.

✘

2.



✘

3.



✔

4.

Question Number : 159 Question Id : 3426041919 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

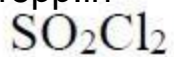
Benzoyl chloride is prepared from benzoic acid by

Options :

✘

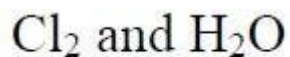
1.  $\text{Cl}_2, h\nu$

2.



✘

3.

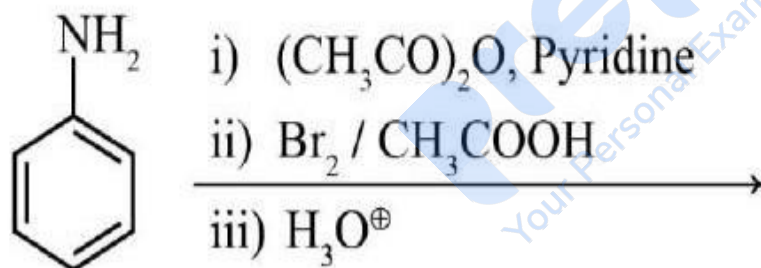


✘

4.

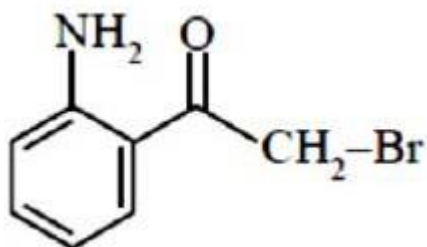
Question Number : 160 Question Id : 3426041920 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical  
 Correct Marks : 1 Wrong Marks : 0

The major product of the following reaction sequence is

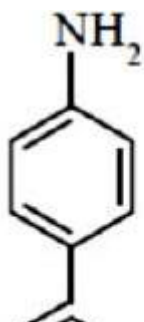


Options :

✘



1.



2.

**prepp**  
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3.



4.

