

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.

Question Paper Name :	Agriculture and Medical English 10th August 2021 Shift 1
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Agriculture and Medical (English)

Group Number :

1

Group Id :

34260414

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

Botany

Section Id :	34260444
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	40
Number of Questions to be attempted :	40
Section Marks :	40
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	34260444
Question Shuffling Allowed :	Yes

**Question Number : 1 Question Id : 3426042081 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0**

ICBN refers to:

Options :

1.



International code for Biological Nomenclature

International code for Botanical Names

2. ✘

International code for Botanical Nomenclature

3. ✔

International code for Bacterial Nomenclature

4. ✘

Question Number : 2 Question Id : 3426042082 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The difference between holophytic nutrition and holozoic nutrition is:

Options :

Holophytic is autotrophic nutrition, while holozoic is ingestion of solid organic food

1. ✔

Holophytic is autotrophic nutrition, while holozoic is the utilization of energy on oxidation of substances

2. ✘

A complete uptake of nutrition is holophytic and synthesis of the food on their own is holozoic

✘

3.

Synthesising their own food is holophytic and depending on their chemicals in the environment, it is called holozoic

4. ✘

Question Number : 3 Question Id : 3426042083 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The study of amphibians of plant kingdom is called:

Options :

Lichenology

1. ✘

Phycology

2. ✘

Bryology

3. ✔

Pteridology

4. ✘

Question Number : 4 Question Id : 3426042084 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 development of zygote into young embryo with in female gametophyte indicates the precursor for the seed habit.

Reason (R) : In pteridophytes, the gametophyte requires cool, damp, shady place to grow.

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 : 5 Question Id : 3426042085 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 among the following.

- A) The female sex organs of Angiosperms are called strobilus
- B) The fusion of motile male gamet with non-motile egg is called zooidogamy
- C) Some algae are in association with animals
- D) Archegonium is flank shaped male sex organ with single cell

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

Options :

A, B, C

1.

B, C, D

2.

A, C, D

3.

A, B, D

4.

Question Number : 6 Question Id : 3426042086 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Find the wrong statements among the following.

- A) In cyathium bisexual, achlymadeous flowers are present
- B) If calyx and corrella are not distinct they are called perianth
- C) In nut, pericarp is stony
- D) The thin membranous structure in the axil of leaf is called bractiole

Options :

A, C

1. ✘

B, D

2. ✘

A, D

3. ✔

B, C

4. ✘

Question Number : 7 Question Id : 3426042087 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	China Rose	i	Acropetal succession	I	Branched peduncle
B	<i>Colocasia</i>	ii	Mesocarp is fleshy	II	Hypogynous
C	Panicle	iii	Alternative phyllotaxy	III	Epigynous
D	Cucumber	iv	Neuter flowers	IV	Corm

The correct match is:

Options :

1. ✘

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

2. ✘

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

3. ✔

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

4. ✘

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

Question Number : 8 Question Id : 3426042088 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) A bud is present in the axil of leaflets of the compound leaf
- B) *Casuarina* has limited growth of branches as phylloclades
- C) Sub aerial stem of *Oxalis* spread to new niches when old parts die
- D) Pericarp and seed coat fuse together in caryopsis

Options :

1. ✘ A, B, C

2. ✘ A, C, D

3. ✘ A, B, D

4. ✔ B, C, D

Question Number : 9 Question Id : 3426042089 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) : Sometimes Fig fruits are seen with eggs of the insects.

Reason (R) : In Fig plants, pollination takes place by *Blastophaga*.

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 : 10 Question Id : 3426042090 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Commelina produces flowers which open and are similar to flowers of other species with exposed anthers and stigma are called _____. A typical angiospermic embryo sac, at maturity, contains _____ nuclei and _____ cells.

Options :

1. ✘

Chasmogamous, 7 and 8

2. ✘

Xenogamy, 8 and 8

✘

Cleistogamous, 7 and 8

3.

Chasmogamous, 8 and 7

4. ✓

Question Number : 11 Question Id : 3426042091 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 difference between herkogamy and declivity in out breeding process respectively.

- A) Anther and stigma are placed at different positions
- B) Pollen release and stigma receptivity are not synchronised
- C) Production of unisexual flowers
- D) Pollen release and stigma receptivity are synchronised

Options :

1. ✓ A, C

2. ✗ A, B

3. ✗ B, D

4. ✗ C, D

Question Number : 12 Question Id : 3426042092 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 evolution, the distribution of Bryophytes and Pteridophytes, was limited.

Reason(R) : The need for water for the transportation of male gametes and fertilization limited their distribution.

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 : 13 Question Id : 3426042093 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) <i>Atropa</i>	i) Ornament	I) Number and codes
B) Computer usage in taxonomy	ii) Medicine	II) <i>Pterocarpus</i>
C) <i>Gloriosa</i>	iii) Fabaceae	III) solanaceae
D) Odd sepal anterior	iv) Numerical Taxonomy	IV) Rhizome

The correct match is:

Options :

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

1. ✓

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

2. ✗

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

3. ✗

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

4. ✖

Question Number : 14 Question Id : 3426042094 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 statement among the following.

Options :

Any unit in the classification is called Taxon

1. ✖

System of classification based on the evolutionary relationship is called phylogenetic system

2. ✖

Development of fruit in the soils called geocarpic as in *Arachis*

3. ✖

Theophrastus classified plants based on floral characters

4. ✔

Question Number : 15 Question Id : 3426042095 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) Circular DNA	i) Sprouting out of cell	I) Attach the bacteria to the host tissue
B) Fimbriae	ii) Outermost layer of the cell wall	II) Solanaceae
C) Middle lamella	iii) Makoi	III) Plasmid DNA
D) Mesocarp and endocarp fused	iv) No nuclear membrane	IV) Develops from the cell plate

The correct match is:

Options :

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

1.

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

2.

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

3.

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

4.



Question Number : 16 Question Id : 3426042096 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Choose correct statements among the following.

- A) H₁ Histone molecule lies outside nucleosome and seals
- B) Negatively charged DNA and positively charged histones allows packaging of DNA
- C) Each nucleosome has 6 histone molecular and 145 nucleotides pairs of DNA
- D) The DNA between two successive nucleosomes is called linker DNA

Options :

A, B, C

1. ✘

B, C, D

2. ✘

A, C, D

3. ✘

A, B, D

4. ✔

Question Number : 17 Question Id : 3426042097 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) They are few uncatalyzed metabolic conversions in living system like protein degradation
- B) Study of energy conversion in the living cells is called Bioenergetics
- C) In DNA, each step of nucleotide pair will turn 36°
- D) The first amino acid in a protein chain is called 'C' terminal amino acid

Options :

1. ✘ A, B

2. ✔ B, C

3. ✘ C, D

4. ✘ A, D

Question Number : 18 Question Id : 3426042098 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 pathway from glucose to lactic acid occurs in 10 metabolic steps. Organisms will trap this energy and store in the form of chemical molecules.

Reason (R) :- Glucose is the only substrate for the production of energy.

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 : 19 Question Id : 3426042099 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

If onion root tip cell has 14 chromosomes and DNA content as $2C$, what are the number of chromosomes and DNA content during G_1 , S and G_2 phases respectively?

Options :

1.

2. ✘ 14, 4C ; 14, 2C ; 14, 4C

3. ✘ 7, 2C ; 7, 4C ; 7, 2C

4. ✘ 7, 2C ; 14, 4C ; 14, 2C

Question Number : 20 Question Id : 3426042100 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 incorrect statements among the following.

- A) Epidermal cells are parenchymatous and have small amount of cytoplasm
- B) Gymnosperms have vessels in their xylem
- C) In bicollateral vascular bundle, phloem is present on either side of cortex
- D) Root endodermal cells have deposition of water impermeable, suberin as casparain strips

Options :

1. ✘ A, B

2. ✔ B, C

✘

3.

C, D

A, C

4. ✘

Question Number : 21 Question Id : 3426042101 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.

- A) Periderm consists of phellogen, phellem and phelloderm
- B) Permanent tissue having many different types of cells is called complex tissue
- C) In stem, endodermis stores starch grains
- D) Heartwood and sapwood produced in a year have same colour and density

Options :

A, B, C

1. ✔

B, C, D

2. ✘

A, B, D

3. ✘

A, C, D

4. ✘

Question Number : 22 Question Id : 3426042102 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) In total cost of ecosystem services, soil formation accounts for 50%
- B) During succession, some species colonise an area and their population increases, but other species will disappear
- C) In many desert plants, CAM pathway enables the stomata to close during day time
- D) In hydrophytes, long, slender and flexible stems are not found

Options :

1. ✓ A, B, C

2. ✗ A, B, D

3. ✗ B, C, D

4. ✗ A, C, D

Question Number : 23 Question Id : 3426042103 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) Coprophilous	I) <i>Trichoderma</i>
B) Karyogamy and meiosis occur in sac-like structures	II) <i>Mucor</i>
C) Flask shaped fruiting bodies with an apical opening	III) <i>Puccinia</i>
D) Asexual reproduction takes place by planospores	IV) Perithecium
	V) Dung
	VI) <i>Penicillium</i>
	VII) <i>Alternaria</i>

The correct match is:

Options :

A B C D
V III VII II

1.

A B C D
VII VI I III

2.

A
III

B
I

C
IV

D
II

3.

4.

✘

✘

✘

✔

A	B	C	D
V	VI	IV	II

Question Number : 24 Question Id : 3426042104 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) Coenzymes are organic compound	i) No structure similarities	I) Ribose-5 phosphate isomerase
B) Isomerases	ii) Differ from inorganic catalysis	II) During catalysis
C) Non-competitive enzyme inhibition	iii) Catalysing inter conversion of optical positional isomers	III) Operates at high Temperature also
D) Enzyme catalysts	iv) With the apoenzyme only as a transient	IV) Metal ion of copper

The correct match is:

Options :

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

1. ✓



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

2.

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

3. ✘

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

4. ✘

Question Number : 25 Question Id : 3426042105 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) Chlorophyll is the major pigment responsible for trapping of light, accessory pigments also participate
- B) In green plants, H_2O is the hydrogen donor
- C) In purple sulphur bacteria the oxidation product is carbon
- D) Radioisotope studies proved water as source of O_2 release in photosynthesis.

Options :

A, B, C

1. ✘

A, C, D

2. ✘

A, B, D



B, C, D

✘

3.

4.

Question Number : 26 Question Id : 3426042106 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) In ATPase enzyme F_0 part is embedded in the membrane and forms a trans-membrane channel
- B) The F_1 part of ATPase protrudes on the outer side of membrane and proton gradient is formed across the membrane
- C) The gradient of proton provides enough energy to cause conformational change in F_1 particle
- D) The change in F_1 particle makes the enzyme to synthesize ATP

Options :

1. ✘ A, B, C

2. ✔ A, C, D

3. ✘ A, B, D

4. ✘ B, C, D

Question Number : 27 Question Id : 3426042107 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): Relative concentration of O_2 and CO_2 determines which of the two will bind to RuBisCO.

Reason(R): RuBisCO has much greater affinity for CO_2 than for O_2 .

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 : 28 Question Id : 3426042108 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) Phosphoenol pyruvate
- B) Pyruvic acid
- C) Triose phosphate
- D) Glucose-6-phosphate

List-II

- I) Hexokinase
- II) Enolase
- III) Pyruvic kinase
- IV) Aldolase

The correct match is:

Options :

A	B	C	D
II	IV	III	I

1.

2.

A	B	C	D
II	III	IV	I

3.

A	B	C	D
III	IV	II	I

4.



Question Number : 29 Question Id : 3426042109 Question Type : MCQ Option Shuffling : Yes



A	B	C	D
III	IV	I	II



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

Correct Marks : 1 Wrong Marks : 0

Which of the following reactions does not occur in TCA cycle?

- A) Reaction of pyruvic acid with OAA and form citric acid
- B) Formation of two CO_2 molecules
- C) Release of 4 molecules $\text{NADH}^+ + \text{H}^+$
- D) Formation of one GTP molecule

Options :

A, B

1. ✘

A, C

2. ✔

B, C

3. ✘

B, D

4. ✘

Question Number : 30 Question Id : 3426042110 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Which enzymes of TCA cycle are located within the mitochondrial intermembrane space and prokaryotic cytosol respectively?

- A) Lactate dehydrogenase
- B) Succinate dehydrogenase
- C) Acetyl CoA
- D) Alcohol dehydrogenase

Options :

1. ✘ A, B

2. ✔ B, A

3. ✘ C, A

4. ✘ B, D

Question Number : 31 Question Id : 3426042111 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) | Sun light is essential to the plant process that purifies air fouled by breathing animals | I) | Melvin Calvin |
| B) | Bacteria were used to detect the sites of O ₂ evolution | II) | Sachs |
| C) | Evidence for the production of glucose | III) | Priestley |
| D) | Role of air in the growth of green plants | IV) | Ingenhousz |
| | | V) | Engelman |
| | | VI) | Neil |

The correct match is:

Options :

1.

A	B	C	D
V	II	IV	III

2.

A
IV

B
II

C
V

D
III

3.

4.

A
IV

B
I

C
VI

D
II

✘

✘

✘

✔

A
IV

B
V

C
II

D
III

Question Number : 32 Question Id : 3426042112 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 of the following.

- A) Segregation of genes is a universal phenomenon in all organisms showing sexual methods
- B) Sahiwal Cows of Andhra Pradesh was an example of selection of required characters
- C) British zoologist Punnet developed the graphical representation of possible gamets fertilization pattern
- D) The advantage of pea plant for inheritance studies is self fertilized system for easy observation

Options :

1. ✘ A, B

2. ✘ B, C

3. ✘ B, D

✔ A, D

4.

Question Number : 33 Question Id : 3426042113 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 behaviour of genes among the following.

- A) Segregate at gamete formation, only one of each pair is transmitted to a gamete
- B) Independent pairs segregate independently
- C) Genes will not be modified at any time
- D) Starch synthesis in pea seeds is not controlled by one gene

Options :

1. ✓ A, B

2. ✗ B, C

3. ✗ A, D

4. ✗ B, D

Question Number : 34 Question Id : 3426042114 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 incorrect phenomenon expressed by a bacterium grown in medium lacking lactose.

- I) Initiates beta galactosidase activity
- II) Bacteria does not produce galactose and glucose
- III) Promotor site of transcription unit acts as repressor

Options :

1. ✘ I only

2. ✘ II only

3. ✘ I , II

4. ✔ I, III

Question Number : 35 Question Id : 3426042115 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Ribozymes are:

- A) Catalytic RNA
- B) Non-Protein enzymes
- C) Nuclie acids
- D) Group of ribosomes

Options :

1. ✓ A, B

2. ✗ B, C

3. ✗ A, C

4. ✗ B, D

Question Number : 36 Question Id : 3426042116 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Rho factor is associated with:

Options :



RNA polymerase

1.

2.

Catalysis process of elongation

Initiation of transcription

3. ✘

Transcription of r-RNA

4. ✘

Question Number : 37 Question Id : 3426042117 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): Bacteriophages have the ability to replicate within bacterial cells.

Reason(R) : Bacterial plasmids have very high copy numbers of their genome in the bacterial cells.

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)

✘

✘

(A) is true but (R) is false

3.

4.

(A) is false but (R) is true

Question Number : 38 Question Id : 3426042118 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.

- (A) In gel electrophoresis, DNA fragments resolve according to their size.
- (B) It is not necessary to digest the bacterial cells with lysozyme to isolate DNA
- (C) In PCR, DNA polymerase extends the primers using the nucleotides.
- (D) During the isolation of DNA, ribonuclease is added along with protease
- (E) Agarose gel electrophoresis is employed to check the progression of restriction enzyme digestion.

Options :

B, C, D, E

1. ✘

A, B, C, D

2. ✘

A, C, D, E

3. ✔

A, B, D, E

4.



**Question Number : 39 Question Id : 3426042119 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 on Bt cotton.

- A) Inactive prototoxin activation occurs in alkaline pH
- B) Choice of Bt toxin genes is universal to all crops but specific to targeted pest
- C) Choice of Bt toxin genes are universal to pest but specific to crop
- D) All strains of *Bacillus thuriangensis* do not produce prototoxin

Options :

1. ✘ A, B

2. ✘ B, C

3. ✔ A, D

4. ✘ A, C

Question Number : 40 Question Id : 3426042120 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Fill in the blanks

During metaphase, spindle fibres attach to _____.

Centromeres split and chromatids _____ during _____.

Options :

Telomere, condense, Nucleolus

1.

2.

Kinetochores, Separate, Anaphase

3.

Golgi complex, Move, Telophase

4.

Zoology

Section Id :	34260445
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	40
Number of Questions to be attempted :	40
Section Marks :	40
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1

Sub-Section Id :

34260445

Question Shuffling Allowed :

Yes



Question Number : 41 Question Id : 3426042121 Question Type : MCQ Option Shuffling : Yes

Centromere, Unite together, Prophase



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

Correct Marks : 1 Wrong Marks : 0

One of the following is not a sacred grove

Options :

1. ✘ Khasi and Jaintia Hills

2. ✘ Aravalli Hills

3. ✘ Western Ghat region

4. ✔ Eastern Ghat region

Question Number : 42 Question Id : 3426042122 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 animals of this phylum, embryonic blastocoel becomes the body cavity of adult

Options :

1. ✘ Platyhelminthes

✔

2.

Nematoda

3. ✖ Mollusca

4. ✖ Echinodermata

Question Number : 43 Question Id : 3426042123 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: Amazon rain forest is called the lungs of our planet

Statement II: The number of species per unit area is called species richness

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 : 3426042124 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The triploblastic animals that exhibit asymmetry in adult stage are

Options :

1. ✘ Echinoderms

2. ✘ Cnidarians

3. ✘ Sponges

4. ✔ Gastropods

Question Number : 45 Question Id : 3426042125 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

Epithelium	Found in
A) Pavement epithelium	I) Germinal epithelium
B) Simple cuboidal epithelium	II) Lining of intestine
C) Ciliated columnar epithelium	III) Wall of urinary bladder
D) Non ciliated columnar epithelium	IV) Fallopian tube
	V) Mesothelium

The correct match is

Options :

A	B	C	D
V	III	II	IV

1. ✘

A	B	C	D
II	IV	I	V

2. ✘

A	B	C	D
V	I	IV	II

3. ✔

A	B	C	D
III	I	IV	II

4. ✘

Question Number : 46 Question Id : 3426042126 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 mismatched pair

Options :

✔

✘

1.

Basophils — 6%

2.

Esinophils — 2.3%

3. ✘ Neutrophils — 62%

4. ✘ Monocytes — 5.3%

Question Number : 47 Question Id : 3426042127 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The following are the various external apertures in *Pheretima*

- A) Male genital apertures
- B) Spermathecal apertures
- C) Nephridiopores
- D) Female genital aperture

Arrange the apertures in a correct sequence from anterior end to posterior end

Options :

1. ✘ B, C, D, A

2. ✘ A, B, C, D

✘ C, B, A, D



3.

4.

C, B, D, A

Question Number : 48 Question Id : 3426042128 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

Larva	Animals
A) Bipinnaria	I) Sea urchins
B) Auricularia	II) Brittle stars
C) Ophiopluteus	III) Star fishes
D) Doliolaria	IV) Sea lilies
E) Echinopluteus	V) Sea cucumbers

The correct match is

Options :

A B C D E
III IV V I II

1. ✘

A B C D E
II III I IV V

2. ✘



A B C D E
III V II IV I

3.

A B C D E
I IV II V III

4. ✘

Question Number : 49 Question Id : 3426042129 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 described as venous heart

Reason (R): It supplies blood only to gills

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 : 50 Question Id : 3426042130 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

- A) Golden age of reptiles
- B) Age of amphibians
- C) Golden age of fishes
- D) Age of mammals

LIST-II

- I) Carboniferous period
- II) Coenozoic era
- III) Mesozoic era
- IV) Devonian period
- V) Silurian period

The correct match is

Options :

- | | | | |
|-----|---|---|----|
| A | B | C | D |
| III | I | V | II |

1.

- | | | | |
|-----|---|----|----|
| A | B | C | D |
| III | I | IV | II |

2.

- | | | | |
|----|----|---|-----|
| A | B | C | D |
| II | IV | I | III |

3.

A B C D
V II III IV

4.



Question Number : 51 Question Id : 3426042131 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 table and pick up the correct combinations:

S.No	Type of flagellum	Lateral appendages	Example
I	Pantonematic	One row	<i>Euglena</i>
II	Stichonematic	Two rows	<i>Astasia</i>
III	Acronematic	Absent	<i>Polytoma</i>
IV	Pantacronematic	Two or more rows	<i>Urceolus</i>

Options :

I, II

1. ✘

II, III

2. ✘

III, IV

3. ✔

I, IV

4. ✘

Question Number : 52 Question Id : 3426042132 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The daughter paramecia formed immediately after binary fission are

Options :

1. ✘ Mirror images
2. ✔ Proter and opisthe
3. ✘ Genetically different
4. ✘ Identical

Question Number : 53 Question Id : 3426042133 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Extra intestinal migration is exhibited by

Options :

1. ✘ *Ascaris*
2. ✘ *Wuchereaia*
3. ✘ Microfilaria
- ✔ Rhabditiform larva

4.

Question Number : 54 Question Id : 3426042134 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 incorrect match

Options :

Cocaine – Hallucinations

1. ✘

Barbiturites – Sleeping pills

2. ✘

Amphotamines – Sleeplessness

3. ✘

Morphine – Tranquilizers

4. ✔

Question Number : 55 Question Id : 3426042135 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

These drugs cause sleeplessness

Options :

Barbiturates

1. ✘

✘

✘

L S D

2.

3.

Benzodiazepines

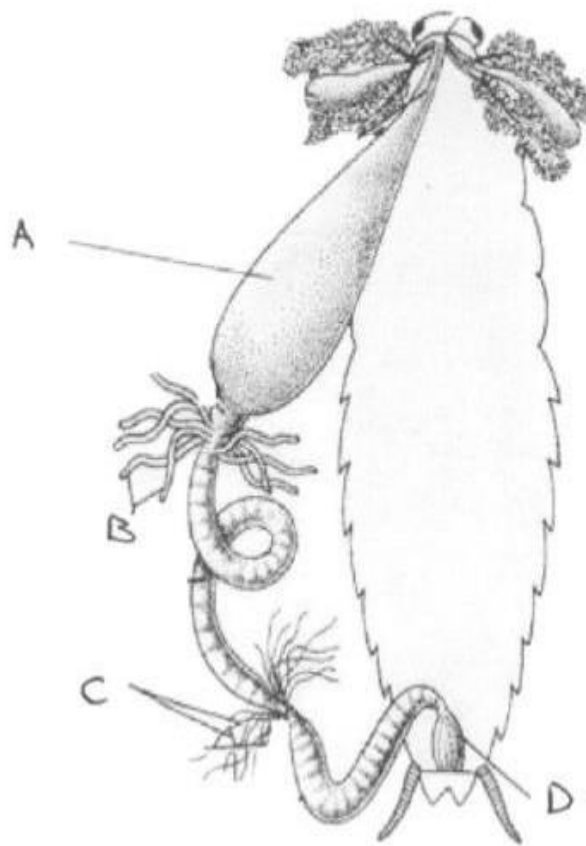
4. ✓ Amphetamines

Question Number : 56 Question Id : 3426042136 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 diagram and identify A, B, C and D



Options :



A

B

C

D

Oesophagus

Malpighian tubules

Hepatic caecae

Ileum

1.

2. ✓

A	B	C	D
Crop	Hepatic caecae	Malpighian tubules	Rectum

3. ✗

A	B	C	D
Stomach	Trachea	Malpighian tubules	Ileum

4. ✗

A	B	C	D
Gizzard	Malpighian tubules	Gastric caecae	Rectum

Question Number : 57 Question Id : 3426042137 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The following reaction takes place in this part of cockroach
 $\text{Potassium urate} + \text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{KHCO}_3 + \text{H}_2\text{O} + \text{uric acid}$

Options :

1. ✗

Rectum

✗

Hepatic caecae

✓

Malpighian tubules

2.

3.

4. ✘ Haemocoel

Question Number : 58 Question Id : 3426042138 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 statements

- I. Contraction of the dorso longitudinal muscles elevate the wings in cockroach
- II. Rectal papillae help in water conservation in cockroach
- III. Second chamber of heart from the anterior part lies in metathorax of cockroach
- IV. Inner cuticular lining of trachea of cockroach is called intima

Options :

1. ✘ I, II

2. ✔ II, IV

3. ✘ III, IV

4. I, III



**Question Number : 59 Question Id : 3426042139 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 species increases from 40 to 46 in one month. If the birth rate during that period is 0.4. What is the death rate?

Options :

1. ✓ 0.25

2. ✗ 0.15

3. ✗ 0.87

4. ✗ 0.40

Question Number : 60 Question Id : 3426042140 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 adaptations in fresh water habitat

- I. *Amoeba* has contractile vacuole
- II. Glomerular kidneys in fresh water fishes
- III. Sponges form gemmules
- IV. *Neoceratodus* forms gelatinous cocoon

Among the above, the correct statements are

Options :

1.

I, II, III

2. ✘ II, III, IV

3. ✘ I, II, IV

4. ✘ I, III, IV

Question Number : 61 Question Id : 3426042141 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) Radio active wastes | I) Global warming |
| B) Green house effect | II) Snow blindness |
| C) UV - B rays | III) Biomagnification |
| D) DDT | IV) Mutations |
| | V) Eutrophication |

The correct match is

Options :

1.

A	B	C	D
IV	I	II	III

2. ✘

A	B	C	D
IV	I	II	V

3. ✘

A	B	C	D
V	IV	II	III

4. ✘

A	B	C	D
III	II	I	IV

**Question Number : 62 Question Id : 3426042142 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

Disease	Reason/Symptom
A) Siderosis	I) Collapse of alveoli
B) Pneumonia	II) People working in mining industries
C) Emphysema	III) Deposition of iron particles in tissues
D) Silicosis	IV) Accumulation of mucus in alveoli
	V) Coal mines

The correct match is

Options :

A B C D
III V II I

1.

A B C D
V IV I III

2.

A B C D
III IV I II

3.

A B C D
IV III II I

4.



**Question Number : 63 Question Id : 3426042143 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0**

In man, pneumotaxic centre lies in

Options :

1. ✘ Medulla oblongata

2. ✘ Cerebellum

3. ✘ Crura cerebri

4. ✔ Pons varoli

**Question Number : 64 Question Id : 3426042144 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0**

This clotting factor is involved in the formation of prothrombin activator in
intrinsic pathway of clotting process of blood

✘

Options :

Factor VII

1.

2. ✘ Factor XIII

3. ✘ Factor IV

4. ✔ Factor XII

Question Number : 65 Question Id : 3426042145 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 part of nephron that is impermeable to water

Options :

1. ✘ Proximal convoluted tubule

2. ✔ Ascending limb of loop of Henle

3. ✘ Descending limb of loop of Henle

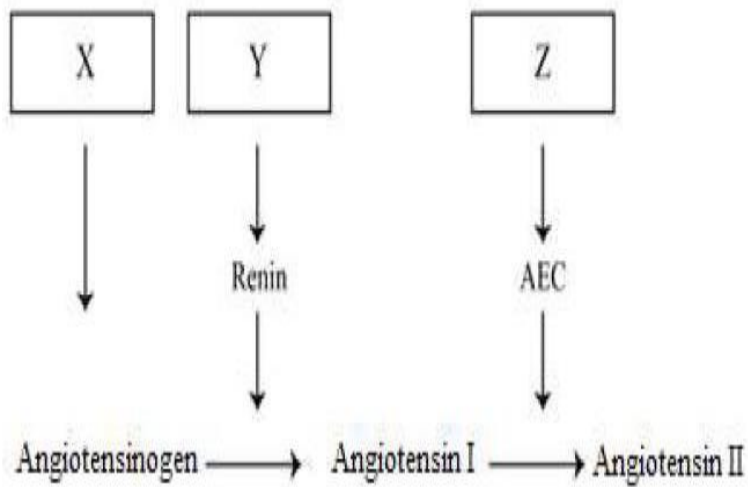
4. ✘ Distal convoluted tubule

Question Number : 66 Question Id : 3426042146 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 Renin Angiotensin Aldosterone system and identify the correct options for X, Y and Z



Options :

X	Y	Z
Liver	Lungs	Kidney

1.

X	Y	Z
Kidney	Liver	Lungs

2.

X	Y	Z
Liver	Kidney	Lungs

3.

4.

✘

✘

✔

X

Y

Z

Lungs

Liver

Kidney

✘

Question Number : 67 Question Id : 3426042147 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: T- tubule of a muscle fibre and the two terminal cisternae at its sides form the triad system

Statement II: Actin is a motor protein that is able to convert chemical energy into mechanical energy

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 : 68 Question Id : 3426042148 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): Abduces nerves are motor nerves.

Reason (R): They originate from the pons varoli and ends in the lateral rectus muscle of eye ball

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 : 69 Question Id : 3426042149 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Respiratory rhythm centre lies in

Options :

✗

Cerebellum

✗

Cerebrum

1.

2.

3. ✘ Thalamus

4. ✔ Medulla oblongata

Question Number : 70 Question Id : 3426042150 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 table and pick up the correct combinations:

S.No	Endocrine gland	Hormone	Deficiency disease
I	Hypothalamus	Vasopressin	Diabetes mellitus
II	Zona fasciculata of adrenal cortex	Cortisol	Addison's diseases
III	β -Cells of Islets of Langerhans of pancreas	Glucagon	Diabetes insipidus
IV	Pituitary gland	Somatotropin	Dwarfism

Options :

1. ✘ I, II

2. ✘ III, IV

✔ II, IV

✘

3.

4.

I, III

Question Number : 71 Question Id : 3426042151 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 combinations and identify the correct combinations:

S.No	Disorder	Hormone	Secreting gland
I	Addison's disease	Glucocorticoids	Adrenal
II	Myxoedema	Thyroxine	Thyroid
III	Diabetes insipidus	Insulin	Pancreas
IV	Tetany	Calcitonin	Parathyroid

Options :

1. ✓ I and II
2. ✗ II and III
3. ✗ III and IV
4. I and IV

**Question Number : 72 Question Id : 3426042152 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

Antiviral proteins are

Options :

1. ✘ Complement proteins
2. ✘ Interleukins
3. ✔ Interferons
4. ✘ Antibodies

Question Number : 73 Question Id : 3426042153 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Antibodies found in colostrum are mainly of this type

Options :

1. ✘ I_g G
- ✘
- ✔ I_g A

$I_g E$

2.

3.

4. ✘ Ig D

Question Number : 74 Question Id : 3426042154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

During Fertilization, zona pellucida of ovum is dissolved by this enzyme released by the sperm

Options :

1. ✘ Hyaluronidase

2. ✔ Acrosin

3. ✘ Progesterone

4. ✘ Testosterone

Question Number : 75 Question Id : 3426042155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Amniocentesis is a diagnostic procedure to detect

Options :

1. ✓ Genetic disorders of the foetus

2. ✗ Brain defects of new born

3. ✗ Heart disorders of the foetus

4. ✗ Kidney disorders of new born

Question Number : 76 Question Id : 3426042156 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Karyotype of Klinefelter syndrome is

Options :

1. ✗ 45, X0

2. ✓ 47, XXY

3. ✗ 47, XX+13th

✗ 47, XY+18th

4.

Question Number : 77 Question Id : 3426042157 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 regarding genic balance theory of sex determination in *Drosophila*

- I. Organism with AAA XXX is fertile triploid female
- II. Organism with AAA XXY is fertile triploid male
- III. Organism with AAA XX is an intersex
- IV. Organism with AA XXY is metafemal

Which of the above are correct?

Options :

1. ✘ I and IV

2. ✔ I and III

3. ✘ II and IV

4. ✘ I and II

Question Number : 78 Question Id : 3426042158 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 human beings the sex of the off spring depend on the type of sperm that fertilises the ovum

Reason (R): Human males are heterogametic

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 : 79 Question Id : 3426042159 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Mating of superior male of one breed and superior female of another breed is called

Options :

- ✓ Cross breeding
- ✗ Out crossing

1.

2.

3. ✘ Species hybridisation

4. ✘ Inbreeding

**Question Number : 80 Question Id : 3426042160 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0**

In human insulin, number of amino acids in the polypeptide chain B.

Options :

1. ✘ 51

2. ✘ 21

3. ✔ 30

4. 81

Physics

Section Id :

34260446

Section Number :

3

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	40
Number of Questions to be attempted :	40
Section Marks :	40
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	34260446
Question Shuffling Allowed :	Yes

Question Number : 81 Question Id : 3426042161 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 forces have highest range?

- (a) Gravitational force
- (b) Weak Nuclear force
- (c) Electromagnetic force
- (d) Strong Nuclear force

Options :

1.

2.

3.

4.

✘ (a) and (b) only

✔ (a) and (c) only

✘ (a) and (d) only

✘ (c) and (b) only

Question Number : 82 Question Id : 3426042162 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The displacement of an oscillating particle is $y = E \sin (Fx + Gt + H)$. The dimension of a quantity $X = EFGH$ in terms of mass (M), length (L) and time (T) is

Options :

1. ✘ $[M^0L^{-1}T^0]$

2. ✔ $[M^0L^0T^{-1}]$

3. ✘ $[M^0L^{-1}T^{-1}]$

4. ✘ $[M^0L^0T^0]$

Question Number : 83 Question Id : 3426042163 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The length of minute hand in a clock is 4.5 cm. If the tip of the minute hand moves from 6 AM to 6.30 AM, the average velocity of the tip is,

Options :

1. ✓ $5 \times 10^{-3} \text{ cm/s}$

2. ✗ $50 \times 10^{-3} \text{ cm/s}$

3. ✗ $0.5 \times 10^{-3} \text{ cm/s}$

4. ✗ $0.005 \times 10^{-3} \text{ cm/s}$

Question Number : 84 Question Id : 3426042164 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A body moves along the sides of an equilateral triangle of side 20 cm and comes back to the initial point after one round. Then the distance and displacement of the body respectively are

Options :

1. ✗ 60 cm and 20 cm

2. ✓ 60 cm and 0 cm

✗

✗

0 cm and 60 cm

3.

4.

60 cm and 60 cm

Question Number : 85 Question Id : 3426042165 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A ball is projected vertically up with speed V_0 from a certain height H . When the ball reaches the ground the speed is $3V_0$. The time taken by the ball to reach the ground and height H respectively are.

($g \equiv$ acceleration due to gravity)

Options :

$$\frac{4V_0}{g} ; \frac{4V_0^2}{g}$$

1. ✓

$$\frac{2V_0}{g} ; \frac{4V_0^2}{g}$$

2. ✗

$$\frac{V_0}{g} ; \frac{V_0^2}{g}$$

3. ✗

✗

$$4 \frac{V_0}{g} ; \frac{2V_0^2}{g}$$

4.

Question Number : 86 Question Id : 3426042166 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The horizontal and vertical displacement of the projectile at time t are $x = 36 t$, $y = 48 t - 4.9 t^2$ where, x and y are in metres and t in second. Initial velocity of the projectile in m/s is

Options :

15

1. ✘

30

2. ✘

45

3. ✘

60

4. ✔

Question Number : 87 Question Id : 3426042167 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A shell of mass 20 g is fired by a gun of mass 100 kg. If the muzzle speed of the shell is 6km/min., what is the recoil speed of the gun?

Options :

1 cm/s

1.

2. ✓ 2 cm/s

3. ✗ 3 cm/s

4. ✗ 4 cm/s

Question Number : 88 Question Id : 3426042168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The square of resultant of two equal forces is three times their product. Angle between the forces is?

Options :

1. ✗ π

2. ✗ $\pi/2$

3. ✓ $\pi/3$

✗

4.

$$\pi/4$$

Question Number : 89 Question Id : 3426042169 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Consider an elevator which is moving up with a constant speed 5 m/s. The elevator can carry maximum load of 2000 kg (elevator + passenger). If the frictional force which opposes the motion is 5000 N, what would be minimum power delivered by motor to elevator in watt?

($g = 10\text{ms}^{-2}$)

Options :

100000 w

1. ✘

125000 w

2. ✔

150000 w

3. ✘

75000 w

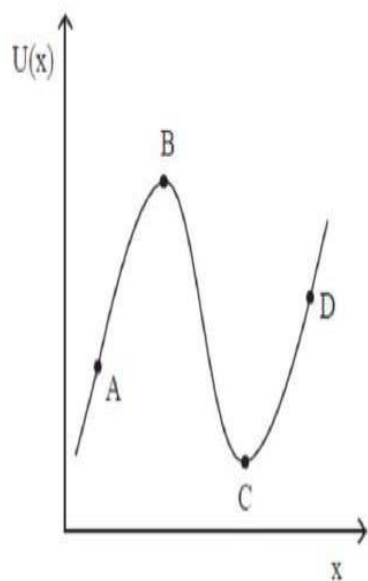
4. ✘

Question Number : 90 Question Id : 3426042170 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 a particle varies with distance 'x' as shown in the graph. The force acting on the particle is zero at



Options :

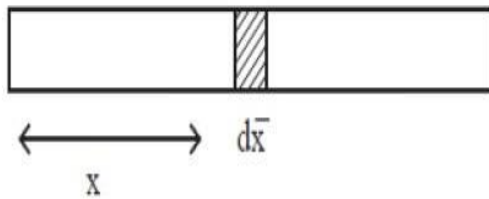
1. ✘ C Only
2. ✘ B Only
3. ✘ A and B
4. ✔ B and C

Question Number : 91 Question Id : 3426042171 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A rod has length L . The linear mass density is $2x$ kg/m, where x is the distance from the left end. Centre of mass of the rod from the left end lies at a distance of



Options :

1. $\frac{3}{2}L$

✘

2. $\frac{2}{3}L$

✔

3. L

✘

4. $L/2$

✘

Question Number : 92 Question Id : 3426042172 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A thin motorcyclist rides with sufficient speed in the vertical plane inside a hollow sphere of diameter 20 m to prevent himself from sliding down. If the coefficient of friction is 0.5, then what is the minimum speed of the motor cyclist?
(use $g = 10 \text{ m/s}^2$)

Options :

1. ✘ $2\sqrt{5} \text{ m/s}$

2. ✘ $10\sqrt{5} \text{ m/s}$

3. ✔ $10\sqrt{2} \text{ m/s}$

4. ✘ $15\sqrt{2} \text{ m/s}$

Question Number : 93 Question Id : 3426042173 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 1000 kg collides with a horizontally mounted spring and comes to rest. If the speed of the car just before the collision was 10 m/s and spring constant $k = 10^4 \text{ N/m}$, then what is the maximum compression of the spring

Options :

1. ✔ $10/\sqrt{10} \text{ m}$

✘

✘

2. $\frac{\sqrt{10}}{10} \text{ m}$

3. $2\sqrt{10} \text{ m}$

10 m

4. ✘

Question Number : 94 Question Id : 3426042174 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 statement is false?

Options :

All planets move in elliptical orbits with sun at one of the foci.

1. ✘

The square root of time period of revolution of planet is proportional to the cube of semi major axis of the ellipse.

2. ✔

Line that joins any planet to the sun sweeps equal areas in equal intervals of time.

3. ✘

The measurement of G was given by Cavendish's experiment.

4. ✘

Question Number : 95 Question Id : 3426042175 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 elastic potential energy stored in a stretched steel wire of length 4 m. The wire is stretched through 4 mm and consists of cross sectional area of 8 mm^2 .
(Young's modulus of steel = $2.0 \times 10^{11} \text{ N/m}^2$)

Options :

1. ✓ 3.2 J
2. ✗ 3.0 J
3. ✗ 2.8 J
4. ✗ 3.4 J

Question Number : 96 Question Id : 3426042176 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The bulk modulus of a liquid is $3 \times 10^9 \text{ N/m}^2$. The pressure required to reduce the given volume of this liquid by 1% is

Options :

1. ✗ $3 \times 10^8 \text{ N/m}^2$
- ✗ $1.5 \times 10^7 \text{ N/m}^2$
- ✓

2.

3.

$$3 \times 10^7 \text{ N/m}^2$$

4. ✘ $1.5 \times 10^8 \text{ N/m}^2$

Question Number : 97 Question Id : 3426042177 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A drop of radius R breaks into n equal drops. What is the ratio of total final surface energy to initial surface energy?

Options :

$$n^{1/3}$$

1. ✔

$$n^{1/2}$$

2. ✘

$$n^3$$

3. ✘

$$n^2$$

4.

Question Number : 98 Question Id : 3426042178 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Two pieces of rails each of length 20 m are laid down (end – to –end) when the temperature of surrounding is 25°C . What must be the space left between them so as to allow expansion when the surrounding temperature goes up to 45°C .

[Coefficient of linear expansion for rail is 0.000015 C^{-1}]

Options :

6 mm

1. ✓

3 mm

2. ✗

4 mm

3. ✗

8 mm

4. ✗

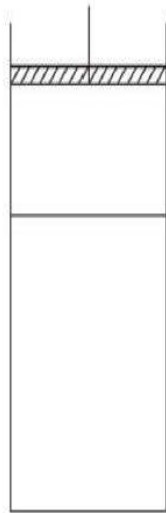
Question Number : 99 Question Id : 3426042179 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

An insulated rectangular container carrying a gas is filled with a movable piston. The dimension of the piston is $10\text{ cm} \times 20\text{ cm} \times 1\text{ cm}$. The density of the material of which piston is made is 8 g/cm^3 . If the gas expands, lifting the piston by 10 cm , what is the change in the internal energy of the gas?

[Take $g = 10\text{ m/s}^2$]



Options :

1. ✓ $- 1.6\text{ J}$

2. ✗ $- 0.8\text{ J}$

3. ✗ $- 0.4\text{ J}$

4. ✗ $- 0.2\text{ J}$

Question Number : 100 Question Id : 3426042180 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

In an adiabatic process the volume is decreased by $\frac{9}{16}\%$. If $\frac{C_p}{C_v} = \frac{4}{3}$, then the pressure is increased by

Options :

$$\frac{16}{9}\%$$

1. ✘

$$\frac{3}{4}\%$$

2. ✔

$$\frac{9}{16}\%$$

3. ✘

$$\frac{4}{3}\%$$

4. ✘

Question Number : 101 Question Id : 3426042181 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 water is converted into ice, and its entropy is changed by ΔS , then

✘

Options :

$$\Delta S > 0$$

1.

2. ✓ $\Delta S < 0$

3. ✗ $\Delta S = 0$

4. ✗ ΔS is negative for sometime and then it becomes positive

Question Number : 102 Question Id : 3426042182 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If r is the radius of molecules in a gas, then the mean free path of molecules is proportional to

Options :

1. ✗ r^{-3}

2. ✗ r^2

3. ✓ r^{-2}

✗

$$I^{3/2}$$

4.

Question Number : 103 Question Id : 3426042183 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Two simple pendulums with time periods T_0 and T_1 start oscillating in the same direction at the same time. If $T_0 > T_1$ and the phase difference between them is $\frac{\pi}{3}$ when the faster pendulum has completed one oscillation, then T_1 is

Options :

$$\frac{5}{6} T_0$$

1. ✓

$$\frac{3}{4} T_0$$

2. ✗

$$\frac{2}{3} T_0$$

3. ✗

$$\frac{1}{2} T_0$$

4. ✗

Question Number : 104 Question Id : 3426042184 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A concave glass lens of refractive index 1.5 is immersed in carbon di-sulfide (refractive index =1.6). Which of the following is true?

[Assume both surfaces of the lens have same radius of curvature = R]

Options :

1. ✓ It will behave as convergent lens with focal length $8R$
2. ✗ It will behave as divergent lens with focal length $8R$
3. ✗ It will behave as convergent lens with focal length $7.5R$
4. ✗ It will behave as divergent lens with focal length $7.5R$

Question Number : 105 Question Id : 3426042185 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

In a two slit interference experiment light is passed through two slits, which are a distance 'd' apart forming interference on a distant screen. If the distance between the slits is decreased by a factor of 2 and the wavelength of light is doubled then the distance between the central maximum and the first maximum will become ----- times the original value.

Options :

✗

✗

1

1.

2.

2

3

3. ✘

4

4. ✔

Question Number : 106 Question Id : 3426042186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A point charge of $3.0 \mu\text{C}$ is at the center of a Gaussian surface of radius 10cm . What is the net electric flux through the surface?

[use $\epsilon_0 = 9 \times 10^{-12}$ in S.I. unit]

Options :

$4.0 \times 10^5 \text{ Nm}^2\text{C}^{-1}$

1. ✘

$2.25 \times 10^5 \text{ Nm}^2\text{C}^{-1}$

2. ✘

✔

✘

$$3.33 \times 10^5 \text{ Nm}^2\text{C}^{-1}$$

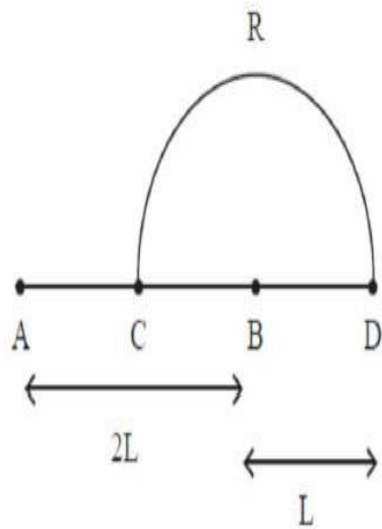
3.

$$5.50 \times 10^5 \text{ Nm}^2\text{C}^{-1}$$

4.

Question Number : 107 Question Id : 3426042187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Charge $+q$ and $-q$ are placed at points A and B respectively which are a distance $2L$ apart, C is the midpoint between A and B. The work done in moving a charge $+Q$ along the semicircle CRD is



Options :

1.

2.

$$\frac{-qQ}{6\pi\epsilon_0 L}$$

3.

4.

$$\frac{qQ}{2\pi\epsilon_0 L}$$

✘

$$\frac{qQ}{3\pi\epsilon_0 L}$$

✘

✔

✘

$$\frac{qQ}{4\pi\epsilon_0 L}$$

Question Number : 108 Question Id : 3426042188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A resistor connected to a battery is heated due to the current in the circuit. Which of the following quantities do not change, assuming the potential difference across the resistor is constant?

Options :

1. ✓ Number of nuclei
2. ✘ Drift speed of electrons
3. ✘ Resistivity of material
4. ✘ Resistance of the resistor

Question Number : 109 Question Id : 3426042189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A straight wire carrying current I is lying along the axis of a circular loop carrying current I . The force on this wire due to circular loop is proportional to
(Assume axis of the circular loop is perpendicular to the plane of the loop)

Options :

1. ✓ zero
2. ✗ I^2
3. ✗ $2I^2$
4. ✗ $\frac{I^2}{2}$

Question Number : 110 Question Id : 3426042190 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 sides 2 m lies in X – Y plane and carries a current 3A and is in magnetic field coming out of the page (along +Z –axis). The field grows in strength at a rate 2mT/m in horizontal direction (X-axis). What is the force acting on it?

Options :

- ✓ 2.4×10^{-2} N
- ✗ 2.4×10^{-3} N

1.

2.

3. ✘ $1.2 \times 10^{-2} \text{ N}$

4. ✘ $1.2 \times 10^{-3} \text{ N}$

Question Number : 111 Question Id : 3426042191 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 magnetic meridian of a certain place, the horizontal component of the dip angle is 45° . What is the magnetic field of the earth at this location?
(Use Horizontal component of the magnetic field to be 0.26 G)

Options :

1. ✔ 0.37 G

2. ✘ 0.26 G

3. ✘ 0.52 G

4. 0.18 G



**Question Number : 112 Question Id : 3426042192 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

Current in a circuit falls from 8.0 A to 0.0 A in 0.2 Seconds. If an average emf of 300 V is induced, estimate the self – inductance of the circuit?

Options :

1. ✓ 7.5 H

2. ✗ 7.0 H

3. ✗ 8.0 H

4. ✗ 8.5 H

Question Number : 113 Question Id : 3426042193 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

In a series LCR circuit with inductance $L = 100 \text{ mH}$ and angular frequency $\omega = 2000 \text{ rad/s}$, the current amplitude is maximum if the capacitance is

Options :

1. ✗ $5 \mu\text{F}$



2.

$2.5\mu\text{F}$

3. ✘ $7.5\mu\text{F}$

4. ✘ $10\mu\text{F}$

Question Number : 114 Question Id : 3426042194 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A charged particle oscillates about its mean equilibrium position with a frequency 10^{11} Hz. The frequency of the EM- waves produced by the oscillator is

Options :

1. ✘ $\frac{10^{11}}{\pi}$ Hz

2. ✘ $\frac{5 \times 10^{10}}{\pi}$ Hz

3. ✔ 10^{11} Hz

4. $2\pi \times 10^{11}$ Hz



Question Number : 115 Question Id : 3426042195 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

In a photoelectric experiment the incident photons have frequency $\frac{3}{2}\nu$, where ν is the threshold frequency. The stopping potential is V . If the frequency of the incident photons is changed to $\frac{3}{4}\nu$, then the correct statement is

Options :

No emission of electrons will take place

1. ✓

electrons will be emitted

2. ✘

Stopping potential will become 1.5 V

3. ✘

stopping potential will become zero

4. ✘

Question Number : 116 Question Id : 3426042196 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Wavelength λ is emitted when an atom moves from $2E$ energy level to E energy level.

If the transition takes place from $\frac{5}{3}E$ energy level to E energy level, then the emitted wavelength will be

Options :

1. ✘ $\frac{2}{3}\lambda$

2. ✔ $\frac{3}{2}\lambda$

3. ✘ 3λ

4. ✘ 2λ

Question Number : 117 Question Id : 3426042197 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In Rutherford nuclear model of an atom, for a dynamically stable orbit in hydrogen atom the orbit radius varies with the velocity of the electron as $\frac{1}{v^\alpha}$, where α is

(Ignore radiation due to motion of electric charge)

Options :

1. ✘ $\alpha = 1/2$

✘

✔

$$\alpha = 1$$

2.

3.

$$\alpha = 2$$

$$\alpha = 1/4$$

4. ✘

Question Number : 118 Question Id : 3426042198 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 statement is false?

Options :

Pure silicon doped with trivalent impurities gives a p- type semiconductor.

1. ✘

Majority carriers in a n- type semiconductor are holes.

2. ✔

Minority carriers in a p- type semiconductor are electrons.

3. ✘

The Resistance of intrinsic semiconductor decreases with increases of temperature.

4. ✘

Question Number : 119 Question Id : 3426042199 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The width of depletion region in p-n junction diode is 500nm, and an electric field of 6×10^5 V/m is also found to exist. The height of potential barrier is

Options :

1. ✓ 0.30 V

2. ✗ 0.40 V

3. ✗ 3 V

4. ✗ 4 V

Question Number : 120 Question Id : 3426042200 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 frequencies will be suitable for beyond the horizon communication using sky waves?

Options :

1. ✓ 20 MHz

✗

✗

20 Hz

2.

3.

20 GHz

4.

Chemistry

Section Id :	34260447
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	40
Number of Questions to be attempted :	40
Section Marks :	40
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	34260447
Question Shuffling Allowed :	Yes

Question Number : 121 Question Id : 3426042201 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

de Broglie was awarded the Nobel Prize in the year

Options :

1.

✘ 1921

2. ✘ 1922

3. ✔ 1929

4. ✘ 1928

Question Number : 122 Question Id : 3426042202 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Upon irradiation with radiation of a suitable wavelength on the cathode, the photocurrent produced was reduced to zero by applying a stopping potential of 2.63 V. If the work function of the cathode is 4.3 eV, find the approximate wavelength of the radiation (in nm)

Options :

1. ✘ 224

2. ✔ 179

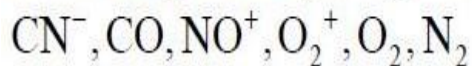
3. ✘ 190

4. 165

**Question Number : 123 Question Id : 3426042203 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 among the given species have the highest bond order?



Options :

1. ✘ 5

2. ✘ 2

3. ✘ 3

4. ✔ 4

Question Number : 124 Question Id : 3426042204 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 pertaining to varying chemical behaviour of the first member of a group (s- and p- block elements) compared with the subsequent members of the same group is that they

- (A) exhibit the maximum covalency of 4
- (B) have less electronegativity
- (C) possess large charge to radius ratio

Options :

✘ (A) and (B) only

1.

2. ✘ (B) and (C) only

3. ✔ (A) and (C) only

4. ✘ (A), (B) and (C)

Question Number : 125 Question Id : 3426042205 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 set contains same bond angle around central atom?

Options :

1. ✘ $\text{CH}_4, \text{SF}_4, \text{NH}_3$

2. ✘ $\text{NF}_3, \text{BCl}_3, \text{NH}_3$

3. ✔ $\text{BF}_3, \text{BCl}_3, \text{BBr}_3$

4. ✘ $\text{BF}_3, \text{NF}_3, \text{AlCl}_3$

Question Number : 126 Question Id : 3426042206 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 electronic geometry of IF_4^+ ?

Options :

1. ✘ Tetrahedral
2. ✘ Octahedral
3. ✔ Trigonal bipyramidal
4. ✘ Trigonal planar

Question Number : 127 Question Id : 3426042207 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 options correctly represents the relations of compressibility factor (z) and van der Waals equation for 1 mole of gas at low pressure?

Options :

1. ✔ $Z + \frac{a}{VRT} = 1$

✘ $Z + \frac{Pb}{RT} = 1$

✘

2.

3.

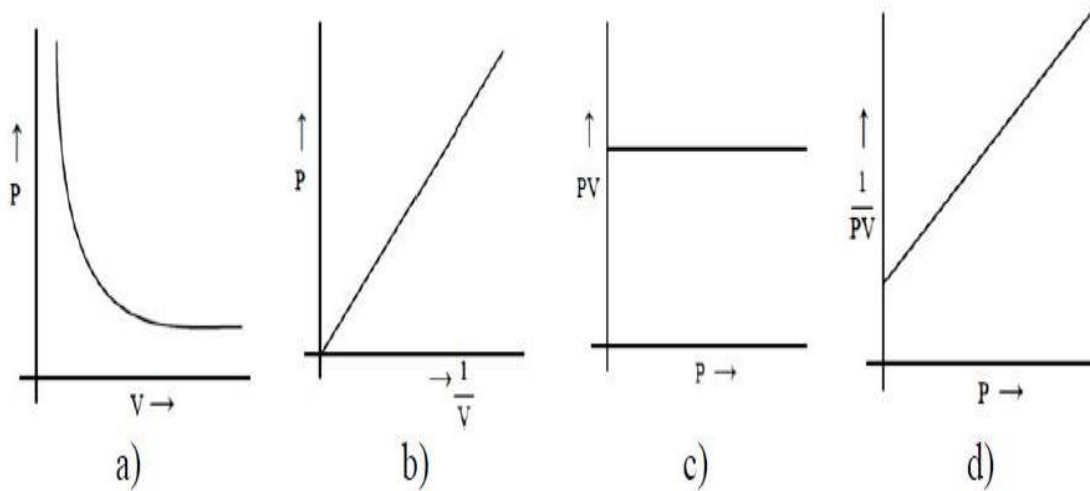
$$Z = 1 + \frac{RT}{Pb}$$

$$Z = 1 + \frac{Pb}{RT}$$

4. ✘

Question Number : 128 Question Id : 3426042208 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 plots correctly represent Boyle's law?



Options :

a, b, d

1. ✘

✘

✘

2. a, c, d

3. a, b, c, d

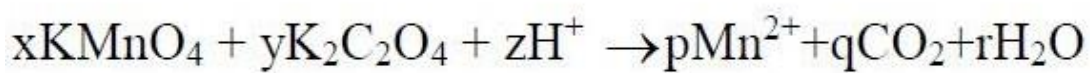
4. ✓ a, b, c

Question Number : 129 Question Id : 3426042209 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Balance the following equation



the correct values of x, y and z are

Options :

x	y	z
5	16	2

1. ✘

x	y	z
2	5	16

2. ✓

x	y	z
5	5	16

3. ✘

4.



2

2

5

Question Number : 130 Question Id : 3426042210 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 species do not show disproportionation reaction?

Options :

1. ✘ HClO

2. ✘ HClO_2

3. ✘ HClO_3

4. ✔ HClO_4

Question Number : 131 Question Id : 3426042211 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The enthalpy of vaporisation of a compound is 840 J/mole and its boiling point is 170 K. Its entropy of vaporisation is

Options :

1. ✔ 4.94 J/mol/K

2. ✘ 12 J/mol/K

✘

3. 200 J/mol/K

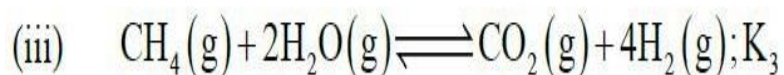
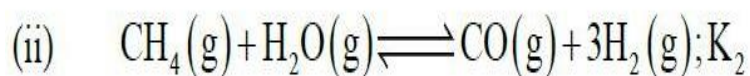
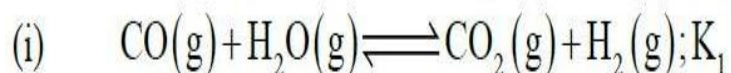
4. ✖ 49 J/mol/K

Question Number : 132 Question Id : 3426042212 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 following three reactions (i), (ii) and (iii), equilibrium constants are given



Which of the following relations is correct?

Options :

1. ✖ $K_1\sqrt{K_2} = K_3$

2. ✖ $K_1K_3 = K_2$

3. ✔ $K_3 = K_1K_2$

4. $K_3 = (K_2)^3 (K_1)^2$

**Question Number : 133 Question Id : 3426042213 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

The reaction $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g})$ was carried out in a closed vessel of 1 L capacity at a suitable temperature (initial concentrations of SO_2 and O_2 are 2 and 1 moles/L respectively). At equilibrium, 1.6 moles of $\text{SO}_3(\text{g})$ was found. The value of K_c at the same temperature is

Options :

1. ✘ 10

2. ✘ 40

3. ✘ 60

4. ✔ 80

Question Number : 134 Question Id : 3426042214 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The strength of 50 volume of H_2O_2 solution is approximately.

Options :

1. ✘ 50%

✘

2.

25%

3. ✖ 10%

4. ✔ 15%

Question Number : 135 Question Id : 3426042215 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) : Beryllium and aluminium forms BeF_4^{2-} and AlF_6^{3-}

Reason(R) : Both Be^{2+} and Al^{3+} have almost same ionic radius

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.

**Question Number : 136 Question Id : 3426042216 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

The highest E^0 (in V) value for $M^+ \rightarrow M$ among the group 13 elements is

Options :

1. ✘ -0.55

2. ✔ 0.55

3. ✘ 0.34

4. ✘ 0.92

Question Number : 137 Question Id : 3426042217 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The catalyst used and the intermediates formed in the following conversion, respectively, are



Options :

1. ✘ $\text{AlCl}_3, \text{CH}_3\text{OH}$

✔ $\text{ZSM-5}, \text{CH}_2 = \text{CH}_2$

✘

2.

3.

ZSM-5, CH₃CHO

4. ✘ ZSM-5, Et₂O

Question Number : 138 Question Id : 3426042218 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

In winter season of antarctica, the depletion of ozone layer by the radical species ClO[•] is mainly due to the formation of

Options :

1. ✘ Polar tropospheric clouds

2. ✔ Polar stratospheric clouds

3. ✘ Polar mesospheric clouds

4. ✘ Methane

Question Number : 139 Question Id : 3426042219 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

An iodo-organic compound, when fused with sodium metal, followed by acidification with nitric acid and then treated with silver nitrate gives

Options :

A white precipitate is formed, which is soluble in NH_4OH solution

1. ✘

A yellow precipitate is formed, which is insoluble in NH_4OH solution

2. ✔

A red precipitate is formed, which is insoluble in NH_4OH solution

3. ✘

A yellow precipitate is formed, which is soluble in NH_4OH solution

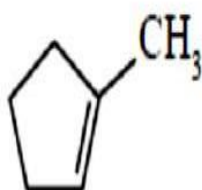
4. ✘

Question Number : 140 Question Id : 3426042220 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

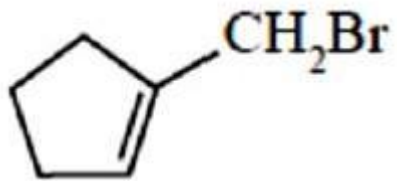
What is the major product obtained from the addition of HBr to the following compound?



Options :

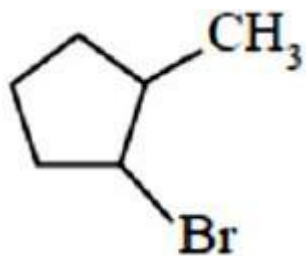
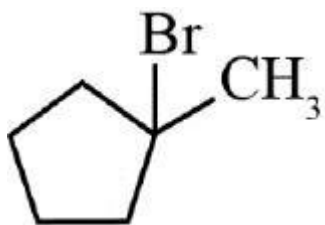
✘

✔

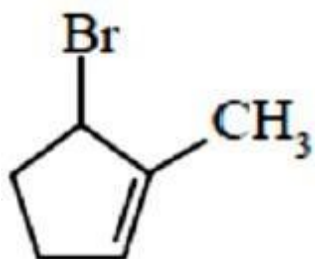


1.

2.



3. ✘

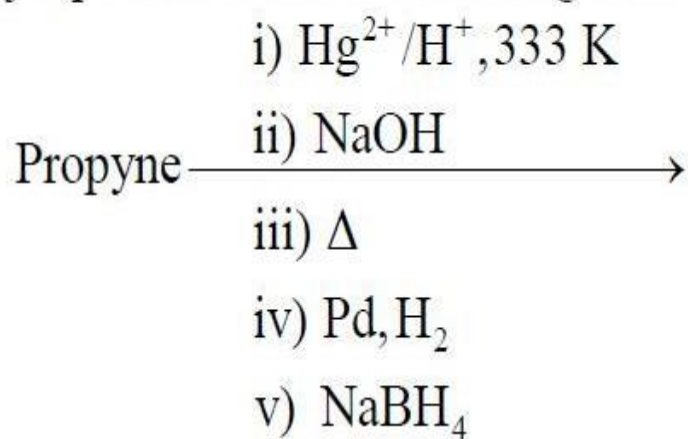


4. ✘

Question Number : 141 Question Id : 3426042221 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

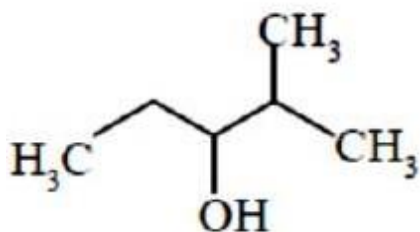
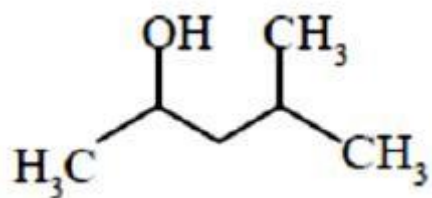


The major product from the following reaction sequence is

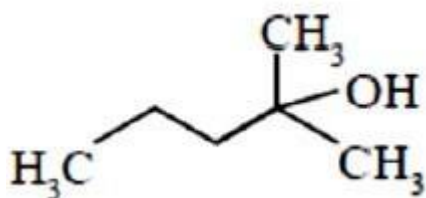


Options :

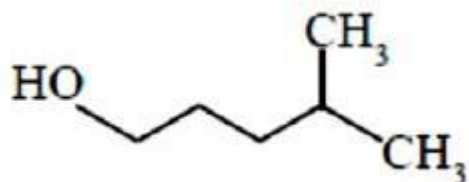
1.



2. ✖



3. ✖



4. ✖

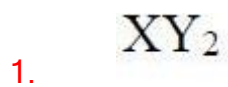
Question Number : 142 Question Id : 3426042222 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A compound made up of atoms of Y (anions) forming a CCP arrangement, where the element X (cation) occupies octahedral voids. The formula of the compound is

Options :



2. ✘ X_3Y_2

3. ✘ X_2Y

4. ✔ XY

Question Number : 143 Question Id : 3426042223 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 pair shows a positive deviation from Raoult's law?

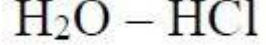
Options :

1. ✘ $H_2O - HNO_3$

2. ✘ $CH_3COCH_3 - CHCl_3$

3. ✔ $C_6H_6 - CH_3OH$

4.



**Question Number : 144 Question Id : 3426042224 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 aqueous solution has highest boiling point?
(Assume identical conditions)

Options :

1. ✘ 1% Glucose
2. ✘ 1% Sucrose
3. ✔ 1% Urea
4. ✘ 1% Phenol

Question Number : 145 Question Id : 3426042225 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 reaction $\text{Sn(s)}/\text{Sn}^{2+}(0.10\text{M})//\text{Pb}^{2+}(0.5\text{M})/\text{Pb(s)}$, What will be the approximate E_{cell} when $[\text{Pb}^{2+}]$ is 0.1M
(given $E^\circ_{\text{Sn}^{2+}/\text{Sn}} = -0.136 \text{ V}$; $E^\circ_{\text{Pb}^{2+}/\text{Pb}} = -0.126 \text{ V}$)

Options :

1. ✔ - 0.011V

✘

2.

-0.022 V

3. ✘ -0.03 V

4. ✘ $+0.022 \text{ V}$

Question Number : 146 Question Id : 3426042226 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The rate constant of a reaction at 25°C is $1 \times 10^{-3} \text{ min}^{-1}$. If the temperature coefficient of the reaction is 2, the rate constant (min^{-1}) at 15°C is

Options :

1. ✘ 2×10^{-3}

2. ✘ 2×10^{-4}

3. ✔ 5×10^{-4}

4. ✘ 4×10^{-3}

Question Number : 147 Question Id : 3426042227 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Lyophilic sols are more stable than lyophobic sols, because

Options :

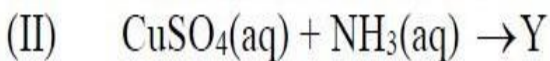
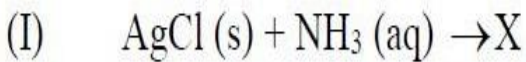
1. ✘ The colloidal particles are not solvated
2. ✔ There is a strong electrostatic interaction between the colloidal particles
3. ✘ The colloidal particles have no change
4. ✘ The Brownian movement

Question Number : 148 Question Id : 3426042228 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The main products X and Y in the following reactions, respectively are
[Hint : equations are not balanced]



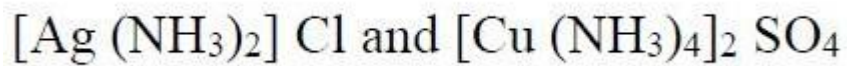
Options :

1. ✘ $[\text{AgCl}] \text{ NH}_3$ and Cu_3N_2
2. ✔ $[\text{Ag (NH}_3)_2] \text{ Cl}$ and $[\text{Cu (NH}_3)_4] \text{ SO}_4$

✘

[Ag (NH₃)] Cl and [Cu (NH₃)₂(H₂O)₂] SO₄

3.



4. ✘

Question Number : 149 Question Id : 3426042229 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 nitrogen compounds, which one has lowest percentage of nitrogen

Options :

Ammonium sulphate

1. ✘

Urea

2. ✘

Ammonium nitrate

3. ✘

Calcium nitrate

4. ✔

Question Number : 150 Question Id : 3426042230 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

According to VESPER theory, the molecular shape of BrF_3 is

✘

Options :

1. Trigonal bipyramid

2. ✘ Triangular

3. ✔ Bent T-shape

4. ✘ Pyramidal

Question Number : 151 Question Id : 3426042231 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When oxalic acid is oxidised with acidified KMnO_4 , the number of moles of CO_2 liberated is (consider balancing the reaction)

Options :

1. ✘ 2

2. ✘ 4

3. ✘ 6

4. ✔ 10

Question Number : 152 Question Id : 3426042232 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Accordingly to the crystal field theory, for an octahedral field, the energy of two e_g orbitals will be increased by

Options :

$$\left(\frac{1}{5}\right)\Delta_o$$

1. ✘

$$\left(\frac{2}{5}\right)\Delta_o$$

2. ✘

$$\left(\frac{3}{5}\right)\Delta_o$$

3. ✔

$$\left(\frac{4}{5}\right)\Delta_o$$

4. ✘

Question Number : 153 Question Id : 3426042233 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Sucrose on hydrolysis gives

✘

Options :

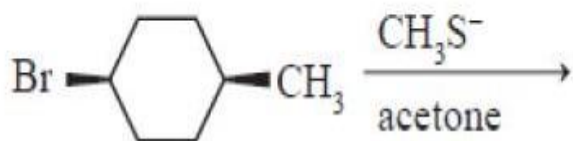
D – (+) – Glucose and D– (+) –Fructose

1.

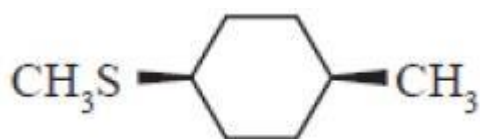
2. ✘ L – (+) – Glucose and D – (+) – Fructose
3. ✔ D – (+) – Glucose and D – (–) – Fructose
4. ✘ D – (–) – Glucose and D – (–) – Fructose

Question Number : 154 Question Id : 3426042234 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical
 Correct Marks : 1 Wrong Marks : 0

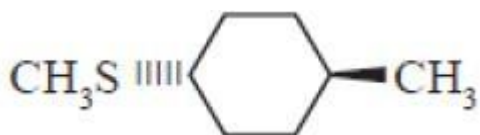
What is the major product formed in the following reaction?



Options :



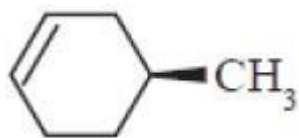
1. ✘



2. ✔

✘





4. ✖

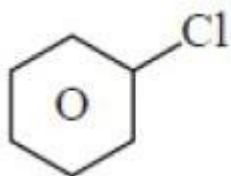
Question Number : 155 Question Id : 3426042235 Question Type : MCQ Option Shuffling : Yes

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

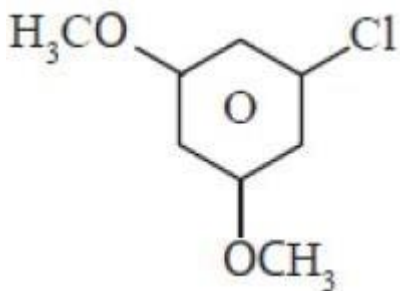
Correct Marks : 1 Wrong Marks : 0

The compound which readily under goes bimolecular nucleophilic substitution reaction with aqueous KOH is

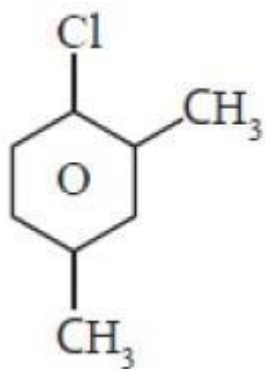
Options :



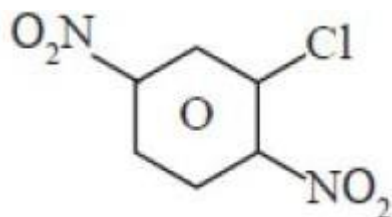
1. ✖



2. ✖



3. ✘

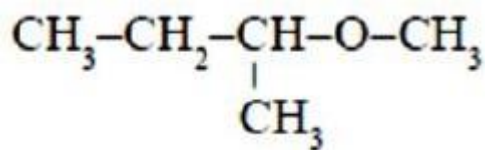
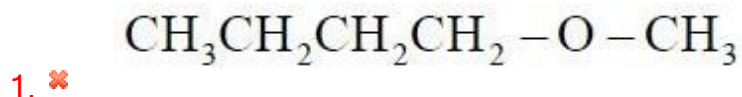


4. ✔

Question Number : 156 Question Id : 3426042236 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 ethers, which one will produce methyl alcohol on treatment with one equivalent of hot concentrated HI

Options :

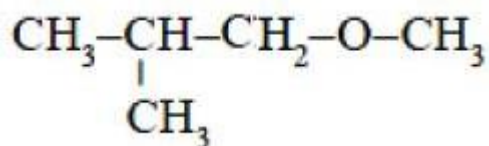
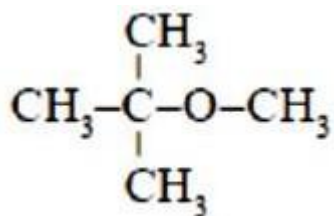


✘

✔

2.

3.



4. ✖

Question Number : 157 Question Id : 3426042237 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The molecule that undergo self oxidation and reduction (disproportionation) reaction intramolecularly upon heating with concentrated alkali is

Options :

3-Bromobenzaldehyde

1. ✖

4-Methoxybenzaldehyde

2. ✖

Phthalic acid

3. ✖

4. ✓ Phthalaldehyde

Question Number : 158 Question Id : 3426042238 Question Type : MCQ Option Shuffling : Yes

Match the Following

List - I
Conversion

List - II
Suitable reagent

- | | |
|-------------------------------------|-----------------------------------|
| A) Benzyl alcohol to Benzaldehyde | I) $(1)Cl_2/h\nu; (2)H_2O, 273 K$ |
| B) Toluene to Benzaldehyde | II) $H_2, Pd-BaSO_4$ |
| C) Benzoyl chloride to acetophenone | III) PCC |
| | IV) CrO_3, H_2SO_4 |
| | V) $(Me)_2 Cd$ |

The correct match is

Options :

A	B	C
III	IV	V

1. ✘

A	B	C
III	I	V

2. ✔

✘

3.

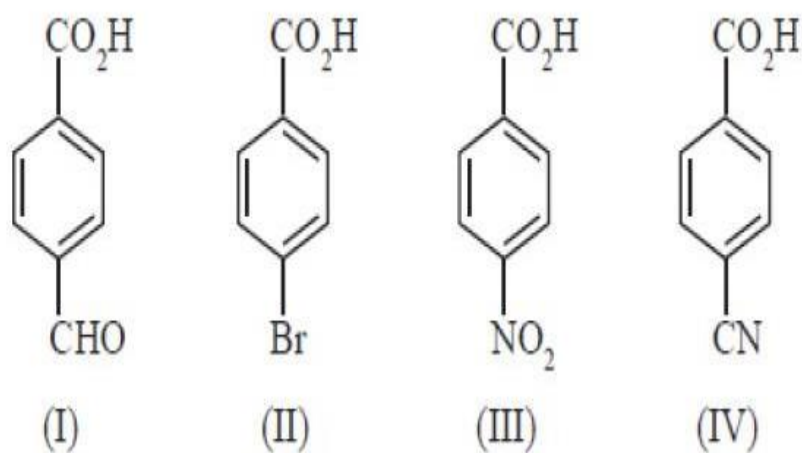
A	B	C
IV	I	II

A	B	C
III	I	II

4. ✖

Question Number : 159 Question Id : 3426042239 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 (acid strength) of the following acids is



Options :

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

1. ✖

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

2. ✖

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

3. ✔

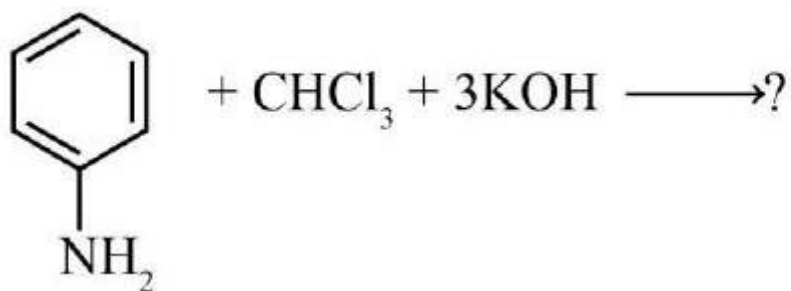
4. ✖ $(IV) > (III) > (I) > (II)$

Question Number : 160 Question Id : 3426042240 Question Type : MCQ Option Shuffling : Yes

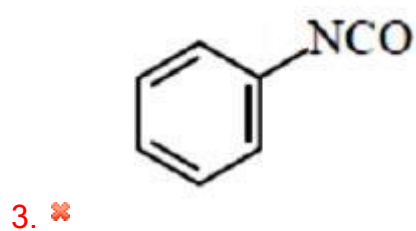
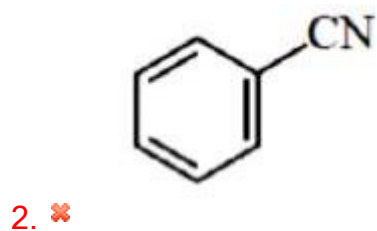
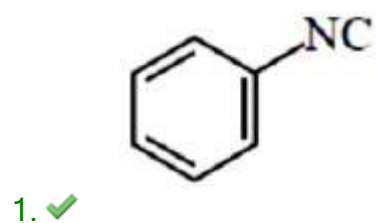
Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

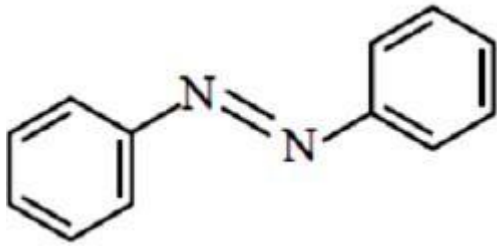
The product obtained in the following reaction is



Options :



✗



4.