

D-10-Z

Roll No.....

Total No. of Questions : 16]

[Total No. of Printed Pages : 4

12thARM(H/Z)JKUTL2024-25

610-Z

BOTANY

(Biology)

Time : 1½ Hours]

[Maximum Marks : 35

SECTION-A

(OBJECTIVE TYPE QUESTIONS)

1 each

1. Which of the following is the most important cause for animal and plants being driven to extinction ?
- (A) Habitat loss and fragmentation
- (B) Floods
- (C) Economic explosion
- (D) Alien species invasion

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D-10-Z

Turn Over

(2)

2. Which of the alcoholic drinks is produced without distillation ?

- (A) Wine
- (B) Whisky
- (C) Brandy
- (D) Rum

3. To initiate translation, the mRNA first binds to :

- (A) Larger ribosomal unit
- (B) Smaller ribosomal unit
- (C) Whole ribosome
- (D) No such specificity exists

4. Callus is :

- (A) Tissue that grow to form an embryoid
- (B) An unorganised actively dividing the mass of cells maintained in a culture
- (C) A tissue that grows from an embryo
- (D) An insoluble carbohydrate

5. Define Camouflage.

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D-10-Z

(3)

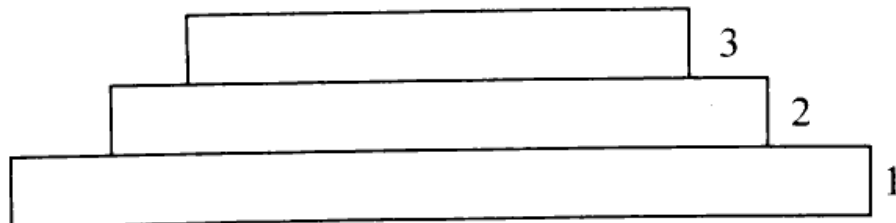
SECTION-B

(VERY SHORT ANSWER TYPE QUESTIONS) 2 each

6. Name the common trait shared between *Clostridium butylicum*, *Lactobacillus* and *Aspergillus niger*.

7. A mature embryo sac in a flowering plant may possess 7-cells, but 8-nuclei. Explain it with the diagram only.

8. Label the three different tiers in the given age pyramid. Mention the kind of population growth described by the pyramid.



9. Define :

(a) Pleiotropy

(b) Test cross

10. Differentiate between integument and testa.

12thARM(H/Z)JKUTL2024-25-610-Z

D-10-Z

Turn Over

(4)

SECTION-C

(SHORT ANSWER TYPE QUESTIONS)

3 each

11. Describe the development of male gametophyte.
12. Write a brief note on the importance of species diversity.
13. Describe the kind of food that would have lactic acid bacteria.
Mention their useful applications.
14. What is Gene Expression ? Where would it be exerted in Eukaryotes ?
15. Differentiate between Dominance, Co-dominance and Incomplete dominance.

SECTION-D

(LONG ANSWER TYPE QUESTIONS)

5

16. What is Primary Productivity ? Give a brief description of factors that affect primary productivity.

Or

Define Population Interactions. Describe *four* types of negative interactions with the help of examples.

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D-10-Z

D-10-Y

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12thARM(H/Z)JKUTL2024-25

610-Y

BOTANY

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SECTION-A

(OBJECTIVE TYPE QUESTIONS)

1 each

1. Which *one* is not decomposers ?

(A) Fungi

(B) ~~Viruses~~

(C) Bacteria

(D) Flagellates especially abundant in the bottom of pond

12thARM(H/Z)JKUTL2024-25—610-Y

D-10-Y

Turn Over

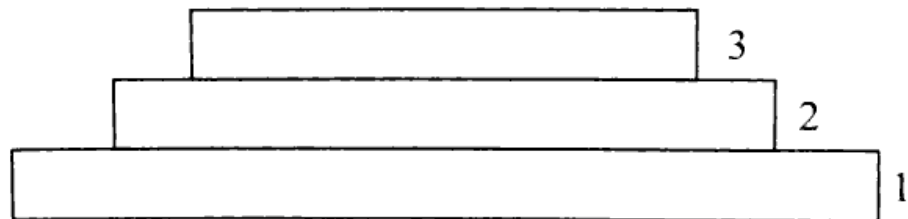
2. Large holes in Swiss Cheese are produced by :
- (A) A machine
 - (B) A bacterium that produces methane gas
 - (C) A bacterium that produces carbon dioxide gas
 - (D) A fungus that releases a lot of gases during its metabolic activities
3. A gene of operon which forms the repressor protein is :
- (A) Operator
 - (B) Promotor
 - (C) Regulator
 - (D) Structural
4. The technology of biogas production in India was :
- (A) Imported from Japan
 - (B) Imported from Denmark
 - (C) Imported from USA
 - (D) Developed in India due to the efforts of IARI and KVIC
5. Define Humification.

(3)

SECTION-B

(VERY SHORT ANSWER TYPE QUESTIONS) 2 each

6. What is a Fermentor ?
7. A mature embryo sac in a flowering plant may possess 7-cells, but 8-nuclei. Explain it with the diagram only. <https://www.jkboseonline.com>
8. Label the three different tiers in the given age pyramid. Mention the kind of population growth described by the pyramid.



9. Define :
 - (a) Pleiotropy
 - (b) Test cross
10. Differentiate between integument and testa.

12thARM(H/Z)JKUTL2024-25—610-Y

D-10-Y

Turn Over

(4)

SECTION-C

(SHORT ANSWER TYPE QUESTIONS)

3 each

11. Describe the development of monocot embryo.
12. Write a brief note on the importance of species diversity.
13. Describe the kind of food that would have lactic acid bacteria. Mention their useful applications.
14. What is Gene Expression ? Where would it be exerted in Eukaryotes ?
15. Differentiate between Dominance, Co-dominance and Incomplete dominance.

SECTION-D

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D-10-Y

D-10-X

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12thARM(H/Z)JKUTL2024-25

610-X

BOTANY

(Biology)

Time : 1½ Hours]

[Maximum Marks : 35

SECTION-A

(OBJECTIVE TYPE QUESTIONS)

1 each

1. Herbivores are :

- (A) 1st tropic level Primary Consumer
- (B) 1st tropic level Secondary Consumer
- (C) 2nd tropic level Primary Consumer
- (D) 2nd tropic level Secondary Consumer

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D-10-X

Turn Over

2. On which medium do certain bacteria grow to produce biogas ?
- (A) Lignin
 - (B) Cellulose
 - (C) Chitin
 - (D) Cheese
3. The net electric charge on DNA and Histone is :
- (A) Both positive
 - (B) Both negative
 - (C) Negative and positive respectively
 - (D) Zero
4. Which of the following statements about Trichoderma is incorrect ?
- (A) It is a Bacterium
 - (B) Very common in root ecosystem
 - (C) Free living
 - (D) Effective biocontrol agent
5. Define Endemism.

12thARM(H/Z)JKUTL2024-25-610-X

D-10-X

SECTION-B

(VERY SHORT ANSWER TYPE QUESTIONS) 2 each

6. Why does the Bt toxin protein not kill the *Bacillus* ?
7. A mature embryo sac in a flowering plant may possess 7-cells, but 8-nuclei. Explain it with the diagram only.
8. Label the three different tiers in the given age pyramid. Mention the kind of population growth described by the pyramid.



9. Define :
- (a) Pleiotropy
- (b) Test cross
10. Differentiate between integument and testa.

SECTION-C

(SHORT ANSWER TYPE QUESTIONS)

3 each

11. Describe the development of dicot embryo.
12. Write a brief note on the importance of species diversity.
13. Describe the kind of food that would have lactic acid bacteria. Mention their useful applications.
14. What is Gene Expression ? Where would it be exerted in Eukaryotes ?
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SECTION-D

(LONG ANSWER TYPE QUESTIONS)

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310-Z

BOTANY

(Biology)

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SECTION-A

1 each

1. Which of the following is wrongly matched ?

- | | | |
|-------------------|---|--------------------|
| (A) AUG, GUG | – | Methionine, Valine |
| (B) UAA, UAG, UGA | – | Ochre, Amber, Opal |
| (C) AUG, GUA | – | Initiation Codons |
| (D) UAA, UAG, UGA | – | Stop Codons |

2. Bt-toxin kills :

- | | |
|---------------|-------------------|
| ✓ (A) Insects | (B) Weeds |
| (C) Rodents | (D) None of these |

12thARF(SZ)JKUT2024-25-310-Z

B-10-Z

Turn Over

3. Biogas production is carried out by :
- (A) Halophiles
 - (B) Thermoacidophiles
 - (C) Luminescent bacteria
 - ✓(D) Methanogens
4. The flow of energy in an ecosystem is :
- ✓(A) Unidirectional
 - (B) Bidirectional
 - (C) Multidirectional
 - (D) No specific direction
5. Which *one* of the following is not a hotspot of biodiversity in India ?
- (A) Eastern Ghats
 - (B) Western Ghats
 - (C) Indo-Burma Region
 - (D) Sundaland

SECTION-B

2 each

6. Define Polyembryony. Differentiate between simple and adventive polyembryony.
 7. What is Cellular Totipotency ?
 8. Differentiate between Mutualism and Competition.
 9. Define Pyramid of energy. Explain why pyramid of energy is always upright ?
 10. Name few outbreeding devices. Briefly describe any *one* of them.
- <https://www.jkboseonline.com>

SECTION-C

3 each

11. How does a microspore develop into two male gametes in angiosperms ? Describe the process with suitable diagrams.
12. Define Pleiotropic Gene. Give examples, one each from plants and animals.
13. Describe various applications of Plant Tissue Culture.

.14. Briefly describe the following processes involved in decomposition :

(i) Fragmentation

(ii) Catabolism

(iii) Leaching

15. What are Ramsar Sites ? What is their importance ? Name some Ramsar Sites of India.

SECTION-D

5

.16. What is an Operon ? Explain an Inducible Operon.

Or

State the principle of Independent Assortment. Explain it with a dihybrid cross. Name *one* exception to this principle.

(B-10-Y)

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12thARF(SZ)JKUT2024-25

310-Y

BOTANY

(Biology)

Time : 1½ Hours]

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SECTION-A

1 each

1. Control of gene expression takes place at the level of :

(A) DNA replication

(B) Transcription

(C) Translation

(D) All of these

2. *Bacillus thuringiensis* is involved in the production of :

(A) Beer

(B) Antibiotic

(C) Biopesticide

(D) Biofertilizer

12thARF(SZ)JKUT2024-25-310-Y

B-10-Y

Turn Over

(2)

3. Biogas production is carried out by :
- (A) Halophiles
 - (B) Thermoacidophiles
 - (C) Luminescent bacteria
 - (D) Methanogens
4. Which of the following is related to energy transfer from lower trophic level to higher trophic level ?
- (A) 10 percent law
 - (B) Allen's rule
 - (C) Bergmann's rule
 - (D) Gloger's rule
5. Which is not observed in biodiversity hotspots ?
- (A) Species richness
 - (B) Endemism
 - (C) Lesser interspecific competition
 - (D) Accelerated species loss

12thARF(SZ)JKUT2024-25-310-Y
B-10-Y

SECTION-B

2 each

6. Define Apomixis. Differentiate between recurrent and non-recurrent apomixis.
7. What is Biopiracy ?
8. Differentiate between Predation and Parasitism.
9. Define Pyramid of energy. Explain why pyramid of energy is always upright ?
10. Name few outbreeding devices. Briefly describe any *one* of them.

SECTION-C

3 each

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12thARF(SZ)JKUT2024-25-310-Y

B-10-Y

Turn Over

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B-10-X

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310-X

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SECTION-A

1 each

1. Which step does not occur in translation ?

(A) Initiation

(B) Elongation

(C) Termination

(D) Replication

2. A water body has high BOD when it is :

(A) Polluted

(B) Clean

(C) Inhabited by a lot of life forms

(D) None of these

12thARF(SZ)JKUT2024-25-310-X

B-10-X

Turn Over

(2)

3. Biogas production is carried out by :

- (A) Halophiles
- (B) Thermoacidophiles
- (C) Luminescent bacteria
- (D) Methanogens

4. Which ecosystem has the highest primary productivity ?

- (A) Open ocean
- (B) Temperate evergreen forest
- (C) Tropical deciduous forest
- (D) Tropical rain forest

5. Hotspot of biodiversity is an area on earth that :

- (A) Contains many endemic species
- (B) Shows greater species diversity
- (C) Is under the threat of habitat degradation
- (D) All of these

12thARF(SZ)JKUT2024-25-310-X

B-10-X

(3)

SECTION-B

2 each

6. Define Parthenocarpy. Differentiate between vegetative and stimulative parthenocarpy.
7. What are GM organisms ?
8. Differentiate between natality and mortality.
9. Define Pyramid of energy. Explain why pyramid of energy is always upright ? <https://www.jkboseonline.com>
10. Name few outbreeding devices. Briefly describe any *one* of them.

SECTION-C

3 each

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