

2024	III	06	1100	<b>J-885</b>	(E)
<b>BIOLOGY (56)</b>					
Time : 3 Hrs.		(8 Pages)		Max. Marks : 70	

**General Instructions :**

*The question paper is divided into four sections.*

- (1) **Section A :** *Q. No. 1 contains Ten multiple choice type of questions carrying one mark each. Evaluation will be done for the first attempt only.*  
*Q. No. 2 Contains Eight very short answer type of questions carrying one mark each.*
- (2) **Section B :** *Q. No. 3 to 14 are short answer type of questions carrying two marks each. (Attempt any Eight)*
- (3) **Section C :** *Q. No. 15 to 26 are short answer type of questions carrying three marks each. (Attempt any Eight)*
- (4) **Section D :** *Q. No. 27 to 31 are long answer type of questions carrying four marks each. (Attempt any Three)*
- (5) *Begin the answer of each section on a new page.*

## SECTION - A

**Q. 1. Select the correct alternatives and write the answers :**

**[10]**

- (i) Identify the growth hormone in plants which causes inhibitory effect.
- (a) Cytokinins (b) Abscissic acid  
(c) Gibberellin (d) Ethylene
- (ii) Which one of the following is not a part of lac operon?
- (a) Promoter (b) Regulator  
(c) Inducer (d) Operator
- (iii) In absence of fertilization, corpus luteum degenerates into \_\_\_\_\_.
- (a) tunica albugenia (b) membrana granulosa  
(c) zona pellucida (d) corpus albicans
- (iv) Which of the following divides nasal cavity?
- (a) Hyaline cartilage (b) Mesethmoid cartilage  
(c) Ligamentum arteriosum (d) Laryngopharynx
- (v) Which of the following is caused by unsterilized needle?
- (a) Elephantiasis (b) AIDS  
(c) Malaria (d) Dengue
- (vi) Recognition sequence of restriction enzymes are generally \_\_\_\_\_ nucleotides long.
- (a) 2 to 4 (b) 4 to 8  
(c) 8 to 10 (d) 14 to 18

(vii) Which of the following types require pollinator but result is genetically similar to autogamy?

- (a) Geitonogamy                      (b) Xenogamy
- (c) Apogamy                        (d) Cleistogamy

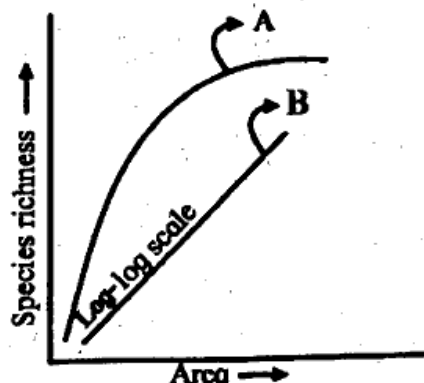
(viii) Which one of the following does not evolve further?

- (a) Climax community
- (b) Primary Succession
- (c) Pioneer Species
- (d) Seral Community

(ix) Identify the appropriate term for the number of births under ideal conditions :

- (a) Absolute mortality              (b) Realized natality
- (c) Realized mortality              (d) Absolute natality

(x) Observe the graph and select correct option :



- (a) Line 'A' represents  $S = CA^2$
- (b) Line 'B' represents  $\log C = \log A + Z \log S$
- (c) Line A represents  $S = CA^Z$
- (d) Line B represents  $\log S = \log Z + C \log A$

**Q. 2. Answer the following questions :**

**[8]**

- (i) What are vestigial organs?
- (ii) Expand the term ZIFT.
- (iii) Give the name of endocrine gland which is prominent at birth but gets gradually atrophied in adult stage.
- (iv) What is the full form of IAA?
- (v) Give the name of microbial source of antibiotic chloromycetin.
- (vi) Which cells of islets of Langerhans produce a hormone insulin?
- (vii) How many meiotic divisions are required for the formation of 300 seeds in angiosperm?
- (viii) Explain the term Emigration.

**SECTION – B**

**Attempt any EIGHT of the following questions :**

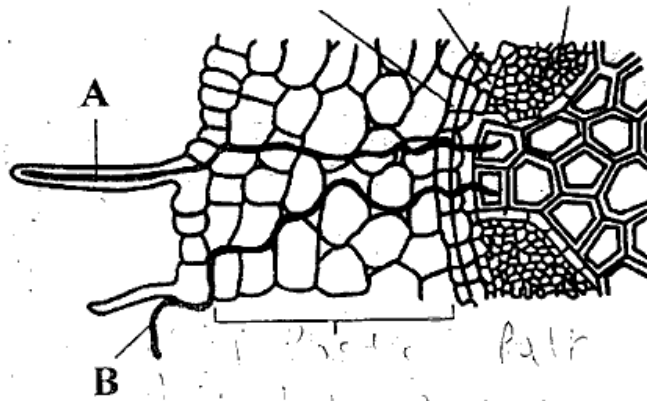
**[16]**

**Q. 3.** What are the reasons for the success of Mendel?

**Q. 4.** Arrange the following steps of DNA fingerprinting in correct sequence :

- (a) Gel electrophoresis
- (b) Isolation of DNA
- (c) Southern blotting
- (d) Restriction digestion

- Q. 5. Distinguish between human sperm and ovum.
- Q. 6. Enlist the uses of gene therapy.
- Q. 7. Define the following terms :
- Gene flow
  - Chromosomal aberrations
- Q. 8. What are the significances of double fertilization?
- Q. 9. Identify and define 'A' and 'B' in relation to uptake of water by the root :



- Q. 10. Describe mutualism.
- Q. 11. Explain factors affecting water absorption.
- Q. 12. What is differentiation and redifferentiation?
- Q. 13. Select and rewrite appropriate disorder of respiratory system with the given symptoms :
- [ sinusitis, emphysema, silicosis and asbestosis, laryngitis ]
- Breakdown of alveoli, shortness of breath.
  - Inflammation of the sinuses, mucous discharge.

- (c) Inflammation of larynx, vocal cord, sore throat, hoarseness of voice, mucous build up and cough.
- (d) Inflammation of fibrosis, lung damage.

**Q. 14.** Explain the steps involved in preliminary treatment of sewage.

## SECTION – C

**Attempt any EIGHT of the following questions :**

**[24]**

**Q. 15.** Give the different steps involved in formation of m-RNA from hn-RNA.

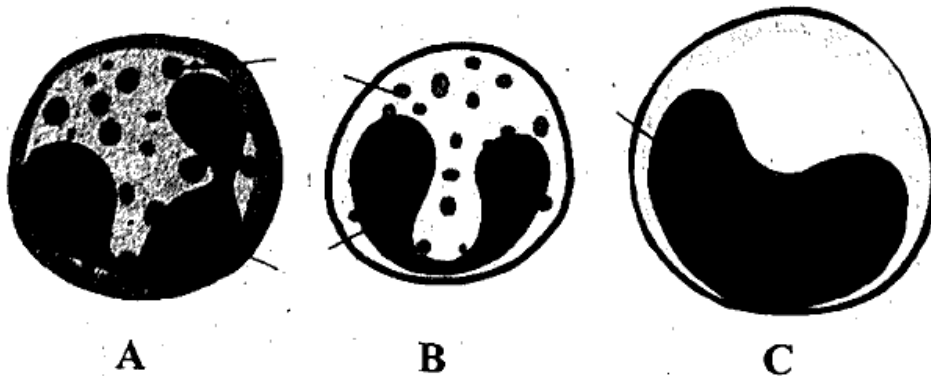
**Q. 16.** What is reproductive isolation? Describe any two types each of pre-mating and post-mating isolating mechanism.

**Q. 17.** Explain unique features of acquired immunity.

**Q. 18.** Name and describe hormones secreted by ovaries.

**Q. 19.** Explain different steps involved in PCR technique.

**Q. 20.**



Identify A, B, and C from the above diagrams and give their functions.

- Q. 21. What are the limitations of root pressure theory?
- Q. 22. Explain green house effect with reference to gases responsible for it and their sources.
- Q. 23. Describe physiological effects and applications of ethylene.
- Q. 24. Give the name and type of I, IV and VII cranial nerves.
- Q. 25. Describe pyramid of energy with the help of diagram.
- Q. 26. What is lac? Enlist economic importance of Lac.

## SECTION – D

Attempt any **THREE** of the following questions :

[12]

- Q. 27. Describe histological structure of Testis with well labelled diagram.
- Q. 28. What are chromosomal disorders? Describe Turner's syndrome and Klinefelter's syndrome.
- Q. 29. Describe nervous system in planaria with well labelled diagram.
- Q. 30. Explain following terms :

- (a) Grafting
- (b) Apomixis
- (c) Polyembryony
- (d) Parthenocarpy

**Q. 31.** Interpret the given diagrams A and B. Enlist the changes occurring during inspiration and expiration.

