

2024

III

06

1100

J-885

(E)

**BIOLOGY (56)**

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.**

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Page 1

P.T.O

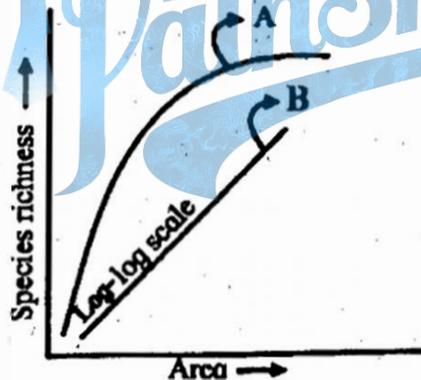
## SECTION – A

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 :**

- (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? <https://www.maharashtrastudy.com>
- (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 :**

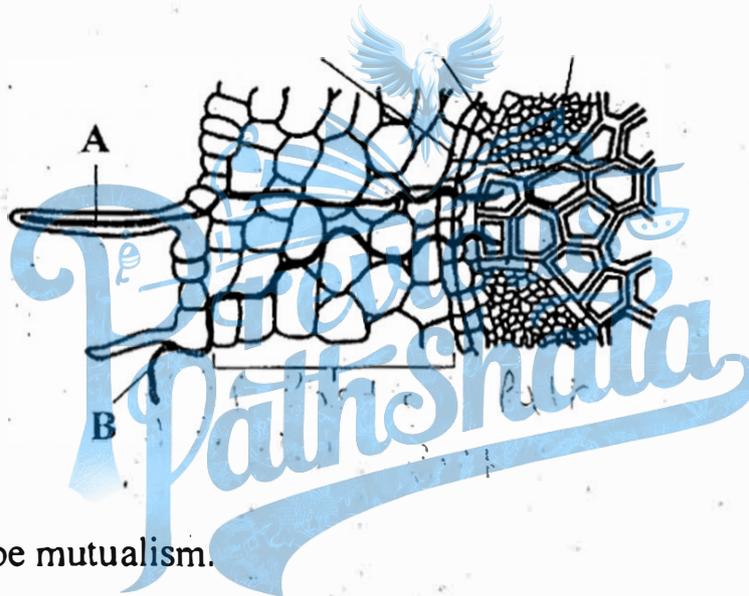
[16]

**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.

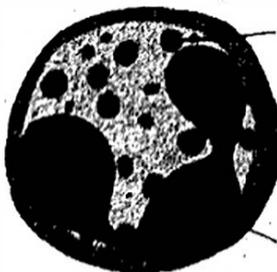
Q. 16. What is reproductive isolation? Describe any two types each of pre-mating and post-mating isolating mechanism.

Q. 17. Explain unique features of acquired immunity.

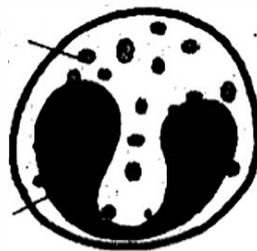
Q. 18. Name and describe hormones secreted by ovaries.

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

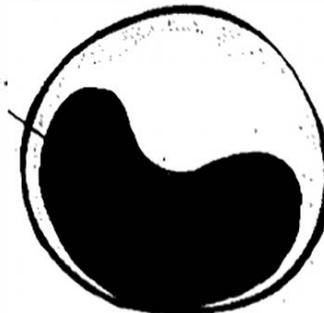
Q. 20.



A



B



C

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.

