

PART - I (BIO-BOTANY)**SECTION - 1**

1. **Linkage groups in Sweet pea :**
(a) 7 (b) 2
(c) 10 (d) 4
2. **Solar energy used by green plants for photosynthesis is only :**
(a) 3 – 10% (b) 2 – 8%
(c) 2 – 9% (d) 2 – 10%
3. **Parthenocarpic fruits lack :**
(a) Mesocarp (b) Endocarp
(c) Seed (d) Epicarp
4. **Southern blotting technique is used to separate ____ .**
(a) RNA (b) Protein
(c) Lipid (d) DNA
5. **Virus-free plants are developed from:**
(a) Protoplast culture
(b) Organ culture
(c) Cell Suspension culture
(d) Meristem culture
6. **People's movement for the protection of environment in Sirsi of Karnataka is :**
(a) Appiko movement
(b) Chipko movement
(c) Forest Man of India movement
(d) Amirtha Devi Bishwas movement
7. **Pedogenesis refers to :**
(a) Population (b) Fossil
(c) Soil (d) Water
8. **Which one of the following is an example of polygenic inheritance?**
(a) Pod shape in garden pea
(b) Flower colour in *Mirabilis jalapa*
(c) Skin colour in humans
(d) Production of male honey bee

SECTION - 2

9. What is Mellitophily ?
10. Write short note on Pollenkitt.
11. Mention any two significance of Ploidy.
12. Give the examples for micropropagation performed in plants.
13. Write any two objectives of Plant Breeding.
14. Differentiate Bio-Medicines and Botanical Medicines.

SECTION - 3

15. Draw the diagram of any three different types of aneuploidies.
16. Write any three advantages of Artificial Seeds.
17. Give three examples of plants cultivated in Commercial agroforestry.
18. Write a note on heterosis.
19. Write the economic importance of rice.

SECTION – 4

20. (a) Describe Dihybrid Cross.

OR

- (b) Write the advantages and disadvantages of Bt-Cotton.

21. (a) List out any five Morphological adaptations of halophytes.

OR

(b) (i) Define food web.

(ii) Write the significance of food web.

PART-II (BIO-ZOOLOGY)

SECTION - 1

22. PCR proceeds in three distinct steps governed by temperature, they are in order of:

- (a) Primer Annealing, Synthesis, Denaturation
- (b) Denaturation, Primer Annealing, Synthesis
- (c) Denaturation, Synthesis, Primer Annealing
- (d) Synthesis, Primer Annealing, Denaturation

23. In which mode of reproduction, variations are seen ?

- (a) Asexual
- (b) Parthenogenesis
- (c) Sexual
- (d) Both (a) and (b)

24. Which of the following rule is used to calculate the number of Barr bodies in a cell ?

- (a) N-1 Rule
- (b) Allen's Rule
- (c) N+1 Rule
- (d) Jordan's Rule

25. Read the given Statements and select the correct option.

Statement 1: Diaphragms, cervical caps and vaults are made of rubber and are inserted into the female reproductive tract to cover the cervix before coitus.

Statement 2 : They are chemical barriers of conception and are reusable.

- (a) Statement 1 is correct but Statement 2 is incorrect.
- (b) Both Statements 1 and 2 are correct and Statement 2 is the correct explanation of Statement 1.
- (c) Both Statements 1 and 2 are incorrect.
- (d) Both Statements 1 and 2 are correct but Statement 2 is not the correct explanation of Statement 1.

26. The maximum reproductive capacity of an organism under optimum environmental conditions is called ____

- (a) Biotic potential
- (b) Carrying capacity
- (c) Capacitation
- (d) Environmental resistance

27. Meselson and Stahl's experiment proved ____

- (a) DNA is the genetic material
- (b) Transduction
- (c) Semi conservative nature of DNA replication
- (d) Transformation

28. Which of the following micro-organism is used for production of citric acid in industries ?

- (a) *Aspergillus niger*
- (b) *Lactobacillus bulgaricus*
- (c) *Rhizopus nigricans*
- (d) *Penicillium citrinum*

29. Assertion (A) : Head of the sperm consists of Acrosome and Mitochondria.

Reason (R) : Acrosome contains spiral rows of Mitochondria.

- (a) (A) is true. (R) is false.
- (b) (A) and (R) are true. (R) is the correct explanation of (A).
- (c) Both (A) and (R) are false.
- (d) (A) and (R) are true. (R) is not the correct explanation of (A).

SECTION - 2

30. What is mass extinction ?

31. Differentiate Complete parthenogenesis from Incomplete parthenogenesis.

32. Expand the following :

- (a) ZIFT
- (b) ICSI

33. State any two salient features of Human Genome project.

34. What are homologous organs ? Give an example.

35. What is pre-pro insulin?

SECTION - 3

36. What is inhibin? State its functions.

37. What are the symptoms of phenyl keto Nuria?

38. Mention any three main objections to Darwinism.

39. List any three adaptations seen in terrestrial animals.

40. Which test is highly sensitive and can detect antigens in the range of nanogram ? Mention the added advantages it possesses.

SECTION - 4

41. (a) Give a schematic representation of gametogenesis in humans.

OR

(b) Differentiate active immunity from passive immunity.

42. (a) There is a paternity dispute for a child'. Which technique can solve the problem. Discuss the principle involved.

OR

(b) List all the wastes that you generate, at home, school or during your trips to other places. Could you very easily reduce the generation of these wastes? -

