

BIO-BOTANY

I. Answer all the questions. Choose the most suitable answer from the four alternatives and write the option code along with the corresponding answer: (8x1=8)

- Size of pollen grain in Myosotis is ----- micrometer
a. 10 b. 20 c. 200 d. 2000.
- How many different kinds of gametes will be produced by a plant having the genotype AABbCC?
a. Three b. Four c. Nine d. Two
- EcoRI cleaves DNA at
a. AGGGTT b. GTATAC c. GAATTC d. TATAGC
- Choose the correct match from the following

	Column - I		Column - II
1	Totipotency	A	Reversion of mature cells into meristem
2	Dedifferentiation	B	Biochemical and structural changes of cells
3	Explant	C	Properties of living cells develops in to entire plant
4	Differentiation	D	Selected plant tissue transferred into culture medium

Options	1	2	3	4
a)	C	A	D	B
b)	A	C	B	D
c)	B	A	D	C
d)	D	B	C	A

- Photosynthetically active radiation wave length between the range of
a. 200 - 700 mn b. 300-700 mn c. 400 -700 mn d. 500-700 nm
- For the given statement with respect to Eichhornia select the suitable answer.
Statement A: It drains of Oxygen from water and is seen growing in standing water
Statement B: It is an indigenous species of our country
a) Statement A is correct and statement B is wrong
b) Both statement A and B are correct
c) Statement A is wrong and statement B is correct
d) Both statement A and B are wrong

7. Which of the following is incorrectly paired
- | | | |
|----------------|---|----------|
| a) Wheat | - | Himgiri |
| b) Milch breed | - | Sahiwal |
| c) Rice | - | Ratna |
| d) Pusa Komal | - | Brassica |
8. Find out the correctly matched pair
- | | | |
|-----------|---|--------------------|
| a) Rubber | - | Shora robusta |
| b) Dye | - | Lawsonia inermis |
| c) Timber | - | Cypress papyrus |
| d) pulp | - | Hevea brasiliensis |

(4x2=8)

II. Answer any four from the following questions.

9. The endosperm of Angiosperm is different from Gymnosperm. Do you agree? Justify your answer.
10. Who are rediscovered Mendel's experimental works?
11. Multiple Alleles-Define.
12. Differentiate somatoclonal variation, Gametes clonal variation.
13. What is called phytoremediation?
14. What is ozone hole?

III. Answer three from the following questions. Question No. 19 is compulsory.

(3x3=9)

15. Differentiate continuous variation with discontinuous variations.
16. What is gene mapping? Mention its uses.
17. Lichen is considered as a good example of an obligate mutualism. Explain.
18. Draw a pyramid from the following details and explain. The quantities of the organisms are given: hawks 25 and plants-500 rabbit and mouse-125+125 snake and lizard – 50+25 respectively
19. What do you know about the objectives of plant breeding?

IV. Answer all questions.

(2x5=10)

- 20.
- With a suitable diagram explain the structure of an ovule.
- .. OR
- What is single cell protein? Mention its application
- 21.
- Suggest a solution to water crisis and mention its advantages.
- .. OR
- What are millets? What are its types? Give example for each.

Part II - BIO-ZOOLOGY

I. Answer all the questions. Choose the most suitable answer from the four alternatives and write the option code along with the corresponding answer

(8x1=8)

1. Which among the following animals exhibit ovoviviparity?
- | | | | |
|---------|----------|----------|---------|
| a. frog | b. shark | c. sheep | d. hen. |
|---------|----------|----------|---------|

2. 21st trisomy is observed in
 a. Down's syndrome b. Patau's syndrome c. Turner's syndrome d. Klinefelter's syndrome
3. Which among the codon codes for methionine?
 a. AUG b. UAA c. UUU d. AUC
4. The disease caused by *Wuchereria bancrofti* is
 a. Malaria b. Filariasis c. Kala-azar d. Sleeping sickness
5. Find out the correctly matched pair
 a. *Trichoderma polysporum* - Clot buster
 b. *Aspergillus niger* - butric acid
 c. *Clostridium butyricum* - cyclosporine A
 d. *Streptococcus* - citric acid
6. The first clinical gene therapy was done for the treatment of
 a. SCID b. cancer c. AIDS d. cystic fibrosis
7. Given below are some examples of population interactions. Which among the following shows mutualism?
 a. Lion and deer b. Man and tape worm c. Hermit crab and sea-anemone
 d. Sucker fish and shark
8. The most abundant greenhouse gas
 a. Carbon-dioxide b. Methane c. Sulphur-dioxide d. Nitrous oxide

(4x2=8)

II. Answer any four from the following questions:

9. Describe the structure of the head of human sperm.
 10. Mention any four salient features of Human Genome Project.
 11. Name an opioid drug and its plant source. How does the drug affect the human body.
 12. How does the transgenic cow Rosie's milk differ from the normal cow's milk?
 13. Differentiate natality from mortality.
 14. What is ozone depletion? How is it caused?

III. Answer three from the following questions. Question No. 18 is compulsory:

(3x3=9)

15. Explain multiple fission in *Plasmodium* with a diagram.
 16. Write the causes and the differences between Haemophilia and Thalassemia.
 17. Explain the secondary treatment of waste water.
 18. Explain the steps involved in the preparation of human insulin artificially.
 19. Differentiate in-situ and ex-situ conservation by sighting examples for each.

(2x5=10)

IV. Answer all questions:

20.
 a. Explain any five techniques of Assisted Reproductive technology (ART)
 .. OR
 b.
 i. Differentiate divergent and convergent evolution with examples
 ii. What are the various objections to Darwinism?
21.
 a. Explain the life cycle of *Plasmodium*
 .. OR
 b. Mention the reasons for the richness of biodiversity in the tropics.
