

2008

BOTANY

Paper 1

*Time : 3 Hours ]**[ Maximum Marks : 300***INSTRUCTIONS**

*Candidates should attempt **all** the questions in Parts A, B & C. However, they have to choose only **three** questions in Part D.*

*Answers must be written in the medium opted (i.e. English or Kannada).*

*This paper has four parts :*

<b>A</b>	20 marks
<b>B</b>	100 marks
<b>C</b>	90 marks
<b>D</b>	90 marks

*Marks allotted to each question are indicated in each part.*

**SEAL**

**PART A**

4×5=20

*Answer each question in about 50 words. Each question carries 5 marks.*

1. (a) Describe the salient features of Rhodophyceae.
- (b) Give a brief account of leaf modification in plants.
- (c) Write a note on transduction in bacteria.
- (d) Give an account of *Rhynia*.

**PART B**

10×10=100

*Answer each question in about 100 words. Each question carries 10 marks.*

2. Draw a labelled diagram of the ultra-structure of a bacterial cell. Add a note on its economic importance.
3. Give a brief account of polyembryony in higher plants and its significance.
4. Describe the structure and replication of Bacteriophage.
5. Briefly describe the thallus organization and pigmentation seen in algae. Write a note on their economic importance.
6. Describe the life cycle of *Puccinia graminis*.
7. With suitable illustrations, explain the differences between the anatomy of C<sub>3</sub> and C<sub>4</sub> plants.
8. With suitable diagrams, list out the differences between xylem and phloem.
9. List out the names of any 10 fruits, identify the fruit type and name the edible parts.
10. Enumerate the resemblances and differences between Gymnosperms and Angiosperms.
11. Write notes on the following :
  - (a) Reproductive stages in *Oedogonium*
  - (b) Asexual reproduction in *Aspergillus*

[Turn over

**PART C**

6×15=90

*Answer each question in about 150 words. Each question carries 15 marks.*

12. Present the similarities and differences that distinguish liver worts and mosses.
13. Write notes on the following :
  - (i) Mycotoxins
  - (ii) Heterothallism in fungi
  - (iii) Androecium in *Asclepiadaceae*
14. Explain the mechanism of biological nitrogen fixation.
15. Give the most salient features of the family Palmae and discuss its phylogenetic relationship.
16. Give the salient features of Bentham and Hooker's system of classification. Discuss its merits and demerits.
17. Describe the post-fertilization changes that take place in a typical dicotyledonous ovule leading to the formation of seed.

**PART D**

3×30=90

Answer any **three** of the following questions, each in about 300 words.  
Each question carries 30 marks.

18. Describe the structure and reproduction of lichens. Give a brief classification and their economic importance.
19. Mention the causal organism, symptoms and control measures of the following plant diseases :
  - (a) Bunchy top of banana
  - (b) Rust of coffee
  - (c) Bacterial wilt of potato
  - (d) Sandal spike
  - (e) Ear cockle of wheat
20. Give the important flower characters of the following families. Give economic importance of three plants from each family.
  - (i) Solanaceae
  - (ii) Gramineae
  - (iii) Orchidiaceae
21. What are downy mildews ? Describe the disease cycle of *P. graminicola* on bajra and also give its control measures.
22. Write an account on Bioremediation by fungi with suitable examples.

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Paper 2

*Time : 3 Hours ]**[ Maximum Marks : 300***INSTRUCTIONS**

*Candidates should attempt **all** the questions in Parts A, B & C. However, they have to choose only **three** questions in Part D.*

*Answers must be written in the medium opted (i.e. English or Kannada).*

*This paper has four parts :*

- |          |           |
|----------|-----------|
| <b>A</b> | 20 marks  |
| <b>B</b> | 100 marks |
| <b>C</b> | 90 marks  |
| <b>D</b> | 90 marks  |

*Marks allotted to each question are indicated in each part.*

**SEAL**

**PART A**

4×5=20

*Answer each question in about 50 words. Each question carries 5 marks.*

1. (a) What do you understand by Genomic library ?
- (b) Give structure and function of Mitochondria.
- (c) Mention important causes of Global warming.
- (d) Describe important fiber yielding plants and their morphological nature.

**PART B**

10×10=100

*Answer each question in about 100 words. Each question carries 10 marks.*

2. Describe the importance of green belt in reducing the environmental pollution.
3. Give the importance of the following in plant metabolism :
  - (a) Ethylene
  - (b) ABA
4. Describe physiological changes occurring during seed germination.
5. Write a note on rRNA biosynthesis in Eukaryotes.
6. Describe structural variations in chromosomes.
7. Describe Photosystem I. Add a note on Hill reaction.
8. Give the importance of GM crops in food security and better human health.
9. Mention five important medicinal plants, parts used and their applications.
10. What do you understand about secondary metabolites ? Mention their commercial applications.
11. Describe use of RFLPs in plant breeding.

[Turn over



**PART C**

6×15=90

*Answer each question in about 150 words. Each question carries 15 marks.*

12. What do you understand by Energy Plantation ? Give any three examples.
13. Describe different forest types of India.
14. What do you understand by Hatch & Slack cycle ? Mention the cell organelle where the cycle operates.
15. Describe synthesis of gibberellins in plants and their physiological effects.
16. What do you understand by mineral disorders ? Describe symptoms caused by deficiency due to Fe, Zn and Cu.
17. Describe characteristics of genetic code.

**PART D**

3×30=90

*Answer any **three** of the following questions, each in about 300 words.  
Each question carries 30 marks.*

18. Mention different methods of gene transfer in plants. Discuss the role of vector in gene transfer.
19. Write in detail about alcoholic and non-alcoholic beverages.
20. Discuss role of National Parks and Sanctuaries in conservation of plant biodiversity.
21. Explain electron transport system. How does ATP help in energy transfer ?
22. Describe the role of growth hormones and their application in agriculture.