

BOTANY**Paper – I**Time allowed : **Three Hours**Maximum Marks : **200****Question Paper Specific Instructions**

Please read each of the following instructions carefully before attempting questions :

There are **EIGHT** questions in all out of which **FIVE** are to be attempted.

Questions no. 1 and 5 are compulsory. Out of the remaining **SIX** questions, **THREE** are to be attempted selecting at least **ONE** question from each of the two Sections A and B.

Attempts of questions shall be counted in chronological order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Answers must be written in **ENGLISH** only.

Neat sketches may be drawn, wherever required.

SECTION A

Q1. Answer the following keeping your answers brief and to the point : 5×8=40

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| (a) | What are the pigments that are found in red algae ? | 5 |
| (b) | What are the different types of flagella found in fungi ? | 5 |
| (c) | How significant is the parasexuality in <i>Aspergillus</i> ? | 5 |
| (d) | Comment on the structure, location and function of transfusion tissue. | 5 |
| (e) | Comment on the contractile vacuoles in <i>Euglena</i> . | 5 |
| (f) | What is the heterotrichous habit of moss protonema growth ? | 5 |
| (g) | What are the xerophytic and hydrophytic characters found in the rhizome anatomy of <i>Equisetum</i> ? | 5 |
| (h) | Differentiate between prokaryote and eukaryote. | 5 |

- Q2.** (a) Explain the molecular basis of plant-pathogen interaction. 10
- (b) Explain variations in male reproductive structures in liverworts. 10
- (c) Briefly discuss the phylogeny of algae. 10
- (d) Write notes on the distribution of bryophytes and pteridophytes in deciduous and evergreen forests of India. 10
- Q3.** (a) What is meant by modelling and how does it help in disease forecasting? 10
- (b) Giving suitable reasons, discuss inter-alia evolutionary status of *Psilotum*, *Selaginella* and *Marsilea*. 15
- (c) Discuss the role of amphibious plants in the evolution of land plants. 15
- Q4.** (a) Explain to what extent has the technique of micropropagation been successful in achieving our goals. 15
- (b) Citing suitable examples, explain how laxity in quarantine procedure can have disastrous effects. 15
- (c) Write a brief note on the advantages of diploid carposporophyte generation in red algae. 10

SECTION B

Q5. Answer the following keeping your answers brief and to the point : 5×8=40

- (a) Differentiate between megasporogenesis and megagametogenesis. 5
- (b) Differentiate between Palaeozoic and Coenozoic plants. 5
- (c) Differentiate between Isotype and Syntype. 5
- (d) Comment on the stratification of pollen grain walls. 5
- (e) Why are gymnosperms called naked-seeded plants ? 5
- (f) Comment on *Plumbago* type of embryo sac development. 5
- (g) What are the angiospermic features of *Gnetum* ? 5
- (h) What are the unique features of Brassicaceae ? 5

Q6. Draw scientifically accurate diagrams of the following and label the parts :

10×4=40

- (a) Floral formula and floral diagram of Ranunculaceae and Rosaceae 10
- (b) L.S. of capsule of *Funaria* 10
- (c) Anatomy of *Pinus* needle 10
- (d) Stages depicting the formation of vegetative and generative cells during male gametophyte development in angiosperms 10

Q7. (a) "Ethnobotany provides important clues to the discovery of modern drugs." Justify the statement giving suitable examples. 15

(b) "*Gnetum* is a link between seed plants and seedless plants." Justify the statement. 10

(c) Differentiate between normal and abnormal secondary growth in dicot stem. Discuss with diagrams wherever necessary. 15

Q8. (a) Compare Bentham and Hooker's system of classification with the system of classification of Hutchinson. 15

(b) Give a concise account of Cordaitales and justify why they form an important group. 10

(c) Write the botanical name, family, active constituents and uses of any five medicinal plants of commercial importance in India. 15