

2021

BOTANY

PAPER-I

Time Allowed — 3 Hours

Full Marks — 200

If the questions attempted are in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining ones ignored.

Answers may be given either in **English** or in **Bengali** or in **Nepali** but all answers must be in one and same language.

Group-A

Answer any four of the following.

1. Write brief notes on any four of the following: 10×4=40
 - (a) Economic importance of Lichens
 - (b) Acropalynology and its role on human health
 - (c) The modes of cellular permineralisation and authigenic preservation of fossils
 - (d) Carrying capacity
 - (e) Secondary metabolites found in angiosperms
 - (f) Types of disease cycles

2. Distinguish between any four of the following: 10×4=40
 - (a) Alpha and Omega taxonomy
 - (b) Transformation and transduction in biology
 - (c) Anamorphic and telomorphic fungi
 - (d) Homologous and antithetic theory of alternation of generation
 - (e) Lytic cycle and Lysogenic cycle
 - (f) Centrales and Pennales

3. Explain any four of the following: 10×4=40
 - (a) Process of double fertilization in angiosperm
 - (b) Diagnostic features of Malvaceae and Fabaceae
 - (c) Bryophytes in pollution monitoring
 - (d) Telome concept
 - (e) Parasexuality in fungi
 - (f) Phytoremediation

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4. Comment on *any four* of the following: 10×4=40
- (a) Melissopalynology
 - (b) Stellar types found in plants
 - (c) Economic importance of fossils
 - (d) Organization of shoot and root apex
 - (e) Algal biotechnology
 - (f) Mycoproteins
5. Discuss *any four* of the following: 10×4=40
- (a) Secondary growth in *Dracaena* and *Boerhaavia*
 - (b) Structure and forms of ovules
 - (c) Types of niche in ecology
 - (d) Endemism in Indian flora with reference to Sunderbans
 - (e) Apospory and apogamy
 - (f) Commercial mushroom culture

Group-B

Answer *any two* questions.

6. (a) Discuss the symptoms and disease cycle in 'Late blight of potato'. What are the control measures adapted in the management of this disease? 6+4=10
- (b) What are pathotoxin and phytoalexin? How do they function in disease management of plants? 5+5=10
7. (a) Illustrate the structural features of male and female reproductive parts of *Cycas*. 5+5=10
- (b) Who was the proponent of 'Age and Area' hypothesis? Explain the hypothesis and mention the merits and demerits of the hypothesis. 2+4+4=10
8. (a) Describe with suitable diagrams and development of endosperm in angiosperms. Describe the post fertilization changes in flowers. 6+4=10
- (b) Name economically important plants (2 each) from the family Poaceae, Brassicaceae and Malvaceae. Mention the parts used and economic uses of each. 6+2+2=10