

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 questions:

1. Write a brief note on any four of the following :-
  - (a) (i) Cell wall composition of angiosperms.  
(ii) Types of pits (with diagram and examples). 5x2
  - (b) (i) Fusiform initial and Ray initials of vascular cambium.  
(ii) Structural variation of sieve elements. 5x2
  - (c) Compare between : (with Diagram)
    - (i) Amphicribal & Amphivasal Vascular Bundle.
    - (ii) Monosporic and Tetrasporic types of megasporogenesis and embryo sac development. 5x2
  - (d) Write a brief note on anomalous secondary growth of Boerhaavia sp. and Bignonia sp. 10
  - (e) Development of male and female gametophytes of Angiosperm. 10
2. Answer any four of the following :
  - (a) What is Pili? Write a brief note on the role of Pili in bacterial reproduction. How it is differ from a flagellum? 2+6+2
  - (b) Depict the Chemical Composition of an eubacterium. Distinguish between Gram positive and Gram negative bacterial Cell wall. 6+4
  - (c) Write a brief note of "Archaea Cell structure". How it is differ from eubacteria? 7+3
  - (d) Illustrate with diagram the formation of endospore of Bacillus subtilis. Why it is high temperature registant? 8+2
  - (e) Explain with diagram "Generalized transduction" and "Specialized transduction". 10
3. Answer any four :
  - (a) Different types of Peristome teeth of mosses. 10
  - (b) (i) Describe the leaf arrangement of acrogynous Jungermanniales.  
(ii) Compare between Elaterophore and elaters. 5x2
  - (c) (i) Enumerate the stelar evolution in early land plants citing examples from Lycopodium sp.  
(ii) Mention the salient features of pseudospermatophytes of fossil Lycopsid. 5x2

- (d) Define homosporous, incipient heterosporous and heterosporous from the evolutionary perspective of early land plants citing one example in each case. 10
- (e) Write a brief note on NPC classification of pollen and spore wall. 10
4. Answer any four :
- (a) Define mycorrhiza. Mention a brief role of mycorrhiza in agriculture and forestry. 10
- (b) Write a brief note on different sterile structures of fungal hymenial layer which have taxonomic significance. 10
- (c) Name the plant disease related to the "Irish famine of 1845". Name the causal organism and host plant. Explain with diagram the life cycle and disease cycle of this pathogen. 10
- (d) Write a short note on Industrial uses of fungi. 10
- (e) Name the causal organism of the disease "Citrus Canker". Write a note on symptom and control measures of this disease. 10
5. Write a brief note on (any four) :
- (a) Auxospore formation of Pennales and centrales diatom. 10
- (b) (i) Anatomical details of the reconstructed stem of a cycadofilicales member.
- (ii) Trunk with flower on dwarf shoot of a cycadeoidales member. 5x2
- (c) Algal toxins and Mycotoxins. 5x2
- (d) Sexual reproduction of Lichen. 10
- (e) Apogamy, Apospory and Apomixis in Pteridophytes. 10

Group - B

Answer any two questions

6. Answer briefly :
- (a) Characterise the following families with **at least four** important diagnostic features : Fabaceae and Poaceae. 5+5
- (b) (i) Enumerate with example the different stages of Hydrosere.
- (ii) Write a brief note on ex situ & in-situ conservation of endangered species. 5x2
7. (a) Write a brief note on allogenic and autogenic succession of a Natural waterbody. 10
- (b) Explain "Endemism" with reference to Sundarban Biodiversity Reserve. 10

8. (a) Describe with diagram the anatomical peculiarities of hydrophytes and xerophytes for adaptation.

10

(b) Distinguish between : (with example)

- (i) Amentum and Locusta.
- (ii) Pome and pepo
- (iii) Cohesion and adhesion of stamen.
- (iv) Aestivation and Placentation.
- (v) Coenanthium and Cyathium.

2x5

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**For guidance of WBCS Prelims , Main Exam and Interview by WBCS Gr A Officers/ Toppers, WBCS Prelims and Main Mock Test (Classroom & Online), Optional Subjects, Studymaterials, Correspondence Course etc.Call WBCSMadeEasy™ at 9674493673 or mail us at [mailus@wbcsmadeeasy.in](mailto:mailus@wbcsmadeeasy.in)**