

This question paper contains 7 printed pages]

**CODE : FRO-2017**

**BOTANY**

Roll. No. ....

*Time : 3 Hours*

*Maximum Marks : 200*

*Note :—* (1) Question paper consists of two parts viz. Part I and Part II. Each part contains *four* questions. The paper as a whole carries eight questions. Question Nos. 1 and 5 are compulsory. The candidates are required to attempt *three* more questions out of the remaining six questions taking at least *one* question from each part i.e. this is in addition to the compulsory question of each part. Attempt *five* questions in all. *All* questions carry equal marks. The parts of a question are to be attempted at one place in continuation. Answers should be brief and to the points.

(2) Parts of same question must be attempted together and not to be attempted in between the answers to other questions.

P.T.O.

## Part I

1. Answer the following questions briefly : 40
- (a) What are viroids ? How are they different from viruses ? 4
  - (b) What are the characteristics of the fungi that differentiate them from all other life forms. 4
  - (c) Neatly draw and label a complete hypogynous flower. 4
  - (d) Describe the three basic types of life cycles exhibited by algae, based on meiosis check points. 4
  - (e) Discuss the various adaptations in bryophytes for life on land. 4
  - (f) Write a brief note on binomial system of nomenclature. 4
  - (g) State the salient features of the family Liliaceae. 4
  - (h) Write a short note on general characters of gymnosperms. 4

- (i) Write an account of recent systems of classification of angiosperms. 4
- (j) Define 'triple fusion' and 'double fertilization'. 4
2. Distinguish between : 5×8=40
- (a) Lytic and lysogenic cycle of viruses.
- (b) Nuclear-type and cellular-type of endosperm formation.
- (c) Bacteria and archaea
- (d) Leptosporangiate and eusporangiate development
- (e) Collenchyma and sclerenchyma.
3. Write explanatory notes on :
- (a) Roles of microbes in industry/agriculture. 10
- (b) Discuss the distinguishing features of hornworts ?  
Why is *Anthoceros* considered as a synthetic genus ? 10

- (c) State the causal organism, symptoms and control measures of white rust of crucifers. 10
- (d) Explain any *ten* technical terms used to describe the structure of flower. 10
4. (a) What is heterospory ? Explain its importance with reference to seed habit in plants. 10
- (b) On the basis of hyphal structure and conidia, how can you determine whether a given fungus is a member of Zygomycota, Ascomycota or Basidiomycota. 10
- (c) Describe the histological organization of a typical monocotyledonous stem. How is it different from a dicotyledonous stem ? 10
- (d) Describe in detail the processes involved in the development of seed from ovule in angiospermic plants. 10

## Part II

5. (A) Define the following terms : 10×2=20

- (a) Photoreceptor
- (b) Genome
- (c) Apoprotein
- (d) Osmosis
- (e) Guttation
- (f) Mutualism
- (g) Fermentation
- (h) Growth
- (i) DNA polymerases
- (j) Kranz anatomy.

(B) Distinguish between : 5×4=20

- (a) Codon and anticodon
- (b) Euchromatin and heterochromatin
- (c) Mitosis and meiosis
- (d) C<sub>4</sub> and C<sub>3</sub> plants
- (e) Photoperiodism and vernalization.

6. Write short notes on : 4×10=40
- (a) Bioremediation
  - (b) Biosafety issues related to genetically modified crops
  - (c) Physiological roles of auxins in plants
  - (d) Plant succession.
7. (a) What are biomes and what are the principal roles of plants in an ecosystem ? 10
- (b) Why is genetic code said to be degenerate and universal ? 10
- (c) Explain how the Hill reaction and use of  $^{18}\text{O}_2$  provided evidence for Van Neil's proposal that water, not carbon dioxide, is the source of oxygen involved in photosynthesis. 10
- (d) What are different kinds of mutations and how do mutations affect the evolution of a population of organisms. 10

8. (a) Define seed dormancy and various methods employed to overcome seed dormancy. 10
- (b) Enlist any *five* macronutrients and write their role and deficiency symptoms. 10
- (c) Write a note on air pollution and its causal agents. 10
- (d) Write the botanical names of *five* economically important plants and briefly write uses. 10