

2021

**BOTANY — HONOURS**

**First Paper**

**Full Marks : 100**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**Module – I**

1. Answer the following questions : 2×5
- (a) Name two cyanobacteria used as biofertilizer.
  - (b) What is raphe? How does it differ from pseudoraphe?
  - (c) Name one potential source of  $\beta$ -carotene. Mention one important use of it.
  - (d) What are the differences between pilli and fimbriae?
  - (e) What is glycocalyx? State one of its important functions.
2. (a) Comment on the vegetative reproduction of Chara. 5
- Or,*
- Comment on the ultrastructure of diatom frustule. 5
- (b) Name a plant and an animal virus. Why it is difficult to control plant virus? 2+3
- Or,*
- What is plasmid? Write a concise note on bacterial plasmid. 1+4
3. (a) (i) What do you mean by alternation of generations? Describe the life cycle of *Ectocarpus* with suitable illustrations. Mention the type of alternation of generations found in this genus. 2+7+1
- (ii) What is the significance of multiple membrane of algal plastids? What is Gaidukov's phenomenon? 3+2
- Or,*
- (i) Write auxospore formation in Centrales with illustrations.
  - (ii) Give a concise report on evolution of sex in Algae.
  - (iii) Write a short note on algal toxins. 5+5+5
- (b) (i) Write down the differences between Gram(+ve) and Gram(-ve) bacterial cell wall.
- (ii) Discuss the steps of endospore formation with labelled sketches.

**Please Turn Over**

(iii) Mention the microbial source and use of  $\alpha$ -amylase and dextran. 5+5+[(1+1½)×2]

**Or,**

- (i) What do you mean by competence? How does natural competence differ from induced one?  
 (ii) What is meant by plasmid curing? State its importance. Explain the phenomenon of rolling circle model of DNA replication. (2+2)+(4+2+5)

### Module – II

4. Answer the following questions : 2×5

- (a) What is Rhizomorph? Give one example.  
 (b) Define necrotrophy. Give one example.  
 (c) What is mono and dikaryotic mycelium?  
 (d) What do you mean by endemic disease? Write one example.  
 (e) What are pathogenesis and pathogenecity?

5. (a) What do you mean by parasexuality? Write the significant properties of parasexual cycle. Mention the steps involved in a parasexual cycle. 1½+1½+2

**Or,**

Write a note on industrial production of ethanol and cheese. 5

(b) Comment on the role of phytoalexin and pathogenesis-related (PR) proteins in defence mechanism of plants. 2½+2½

**Or,**

Distinguish between fission yeast and budding yeast. How is bud scar different from birth scar? 5

6. (a) (i) Describe in brief with neat sketches, the sexual phase of the life cycle of an endobiotic fungus you have studied.  
 (ii) Why mushrooms are suitable diet for diabetic patients? Describe the process of spawn preparation and spawning method with reference to cultivation of *Pleurotus*. 8+(2+5)

**Or,**

- (i) State economic importance of *Mucor*. Distinguish between gametangial contact and copulation.  
 (ii) Write a concise account of different forms of asexual spores in fungi with suitable diagrams and examples. (5+2)+(4+2+2)

(b) Name the causal organism, mention the characteristic symptoms and chemical control measures of the following diseases :

Late Blight of potato and Black stem rust of wheat. (1+3½+3)×2

**Or,**

Distinguish between host specific toxin and non host specific toxin with example. How is Koch's postulate not applicable in case of certain diseases? Give example. What is the causal organism for stem rot of Jute? 5+5+3+2