

2021
BOTANY
[HONOURS]
Paper : II

Full Marks : 75

Time : 4 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.***Answer all the questions.**

GROUP-A
(Microbiology)
(Marks : 25)

1. Answer any **three** of the following questions:

1×3=3

- a) What is Archaea?
- b) Give the full forms of AIDS and HIV.
- c) Write one contribution of Antonie von Leeuwenhook.
- d) What is viroid?
- e) What is bacteroid?

2. Answer any **three** of the following questions:

2×3=6

- a) Differentiate between Pili and fimbriae.
- b) Differentiate endospore and exospore.
- c) Write the names of different phases of bacterial growth.
- d) What is Gram-staining? How can you differentiate bacterial cells by Gram-staining?
- e) What is biogenesis and abiogenesis?

3. Answer any **one** of the following questions:

6×1=6

- a) How bacteria reproduce? Describe the process of binary fission. 1+5
- b) Describe the Lysogenic cycle of Lambda Phage.

4. Answer any **one** of the following questions:

10×1=10

- a) Why do bacteria conjugate? What is Hfr strain? Describe the conjugation method with suitable diagram in bacteria. 2+1+7
- b) Do virus reproduce? What is the lytic cycle? What is the lysogenic cycle? Describe the structure of T₄-phage virus with suitable diagram. 1+1+1+7

GROUP-B

(Applied Microbiology Lichens)

(Marks: 20)

5. Answer any **four** of the following: $1 \times 4 = 4$
- a) Name one micro-organism used in commercial bread production.
 - b) What is phyllosphere?
 - c) Name one micro-organism used in production of griseofulvin.
 - d) Define Antibiotics.
 - e) Name one micro organism used in commercial production of vinegar.
 - f) Name one fungus used as bio-fungicide.
6. Answer any **two** of the following: $2 \times 2 = 4$
- a) Name different types of lichen with examples.
 - b) Explain the relationship between the algal and fungal members in lichen.
 - c) Define bioremediation with proper examples.
 - d) Write economic importance of lichen.
7. Answer any **two** of the following: $6 \times 2 = 12$
- a) Write a short note on bio-film production.

- b) Write the importance of secondary metabolites in bacteria with proper examples.
- c) Discuss the production of cheese with proper diagram.
- d) What is glutamic acid? Name one organism used in glutamic acid production. Discuss the production of glutamic acid. $1 + 1 + 4$

GROUP-C

(Plant Pathology)

(Marks : 30)

8. Answer any **two** of the following questions: $1 \times 2 = 2$
- a) Differentiate between sign and symptom.
 - b) What is the causal organism of Brown spot of rice?
 - c) Define inoculum.
 - d) What is Koch postulate?
9. Answer any **three** of the following questions: $2 \times 3 = 6$
- a) What is disease epidemiology?
 - b) Differentiate between fungicide and fungistat.
 - c) Write the types of pathogen toxins.
 - d) Write down the symptoms of Late blight of potato.
 - e) What is biological control? Give example.

10. Answer any **two** of the following questions:

6×2=12

- a) Write the symptoms and control of Bacterial blight of rice. 3+3
- b) Briefly discuss the genetics of resistance and susceptibility in plants. 3+3
- c) What are phytoalexins? Discuss its role in plant defence. 2+4
- d) Discuss the chemical disease management with examples.

11. Answer any **one** of the following questions:

10×1=10

- a) What are fungal elicitors? How these elicitors affect host-pathogen interaction? Describe with diagram the host-pathogen interaction. 3+2+5
- b) What is the causal organism of Loose smut of wheat? Describe with diagram the disease cycle. Discuss the management of this disease. 2+4+4
