2023

AGS 2nd Semester Examination

B.Sc. Hons. in Agriculture

Agricultural Microbiology

PAPER — 202

Full Marks : 50

Time : 2 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.

Illustrate the answers wherever necessary.

Answer from **all** the Groups as directed.

GROUP—A

1. Answer *any* **five** questions from the following : 2×5=10

(a) What are biopesticides? Give example.

(b) What are antibiotics?

(c) Define denitrification process.

(d) What is humus?

(e) What are transposons?

(f) What is biodegradation?

(g) What are carriers?

(h) What do you mean by biofuel?

GROUP—B

2. Answer *any* **four** questions from the following : 5×4=20

(a) Describe the process by which *Rhizobium spp.* invade the root system of a leguminous plant.

(b) Write down the structure and classification of bacterial flagella.

(c) Write down the contributions of Robert Koch and Louis Pasteur.

(d) What is episome? What are the different enzymes involved in modifying a plasmid? Explain.

(e) Write down the role of microbes in soil fertility.

(f) Distinguish between symbiotic and non-symbiotic nitrogen fixation. Give examples of each type.

GROUP—C

3. Answer *any* **two** questions from the following : 10×2=20

(a) In what ways are fungi important to humans? Differentiate between yeast and mold. Mention the role of mycorrhiza in agriculture. 3+2+5=10

(b) Explain Ti plasmid in detail with diagrammatic representation. Explain the process of symbiotic biological nitrogen fixation in detail. Mention the overall reaction of the process. 5+5=10

(c) Give detailed information about the role of Cyanobacteria and Azolla in agriculture. Give an account of how microbes are helpful in human welfare. (3+3)+4=10

(d) What do you mean by biogeochemical cycle? What are the benefits of biofuel production? Write down the different steps of bioethanol production process. 2+2+6=10

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