



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY
Question Paper

B.Sc. Honours Examinations 2022

(Under CBCS Pattern)

Semester - VI

Subject : MICROBIOLOGY

Paper : DSE 3-T

Microbes in Sustainable Agriculture and Development

Full Marks : 40

Time : 2 Hours

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

The figures in the margin indicate full marks.

1. Answer any *four* of the following questions : 5×4=20
- (a) Write down the difference between mineral soil and organic soil. What is humus? Mention its beneficial effects on soil. 2+1+2
- (b) What are siderophores? How do you control in soil borne plant pathogens. Give an example of organism producing siderophores. 2+2+1
- (c) What is methanogenesis? Write down the name of two methanogens. Discuss the ecological importance of methanogens. 1+2+2
- (d) Define symbiosome. What is leghemoglobin? Write down its significance in N₂ fixation. 2+1+2
- (e) What are rhizomorphs? Discuss the difference between Ti plasmid and T DNA? Define Biotrophic fungi. Specify one example. 1+2+1+1

(f) What do you understand by biogas? Discuss their advantages. What is silage in farming?
1+2+2

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

(a) Mention two microorganisms associated with lignin degradation. What is the difference between mineral soil and organic soil? What is humus? Mention its beneficial effects on soil. What is the significance of the C/N ratio in soil? 2+2+1+2+3

(b) Define rhizosphere? What do you understand by the word “Mycorrhizae”? Write down the difference between ectomycorrhizae and arbuscular mycorrhizae. What is Hartig net? Write down an example of two archaea present in the soil. 2+2+3+1+2

(c) Discuss the term “biological control”. Write down the name of a microorganism involved in the biological control of pests. Briefly describe its mechanism of action. 3+2+5

(d) Write down the name of the causative agent for crown gall disease of the plant. Describe the role of different virulence genes of this pathogen. Discuss tripartite and tetrapartite associations? 1+5+4

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