

U.G. 6th Semester Examination - 2022**MICROBIOLOGY****[HONOURS]****Course Code : MB-H-CC-L-13****(Environmental Microbiology)**

Full Marks : 40

Time : $2\frac{1}{2}$ 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.*1. Answer any **five** of the following: $2 \times 5 = 10$

- i) What are faecal coliforms? Give one example.
- ii) What are halophiles and why do they require sodium and potassium ions?
- iii) Define estuary.
- iv) What occurs when a lake becomes eutrophic?
- v) What is syntropy?
- vi) Define biosorption process.
- vii) What are mycobionts?
- viii) What is unique about bogs in terms of organic matter degradation?

2. Answer any **two** of the following: $5 \times 2 = 10$

- i) Is the fermentation of lactose with production of acid and gas positive evidence for the presence of *E. coli* or the coliforms? Explain.
- ii) What is activated sludge? Compare the microbial activity in the activated sludge process with that which occurs in a septic tank. $2+3$
- iii) How does the microbial loop differ from a food chain?
- iv) Describe the mineralization process as related to the dissimilation of organic phosphorus compounds.

3. Answer any **two** of the following: $10 \times 2 = 20$

- i) How does physical composition of soil influence the magnitude and diversity of the microbial flora? $5+5$
- ii) What are the differences between assimilatory nitrate reduction and denitrification process? What is unique about lignin and its biodegradation process? $4+(2+4)$
- iii) Define salt wedge and explain its influence on estuarine microbial communities. $3+7$
- iv) Outline the process by which a municipality produces potable water. How is the microbial population of the raw water affected at each step? $4+6$

[Turn Over]