R8398

Sub. Code
530401

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Fourth Semester

Microbiology

EXTREMOPHILES

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Xerophile.
2. Epsilonproteobacteria.
3. List some alkaliphile organisms.
4. Antiporters.
5. Dead sea.
6. Haloarchea.
7. Hyperthermophiles.
8. Hydrothermal vents.
9. Permafrost.
10. VBNC.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List out the types and diversity of acidophiles.

Or

(b) Describe on the distribution patterns of extremotrophs.

12. (a) Give an account on anaerobic alkaliphiles.

Or

(b) Illustrate the mechanism of cytosolic acidification in alkaliphiles.

13. (a) How osmoadaptation / halotolerence is achieved?

Or

(b) Write about the properties of high-pressure habitats.

14. (a) Discuss the mechanism of thermostable DNA polymerases and their use.

Or

(b) Discuss on the history of discovery of hyperthermophiles.

15. (a) Write about the biotechnological potentials of psychrophilic enzymes.

Or

(b) What are all the adaptation strategies of acidophiles?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss on the extremophiles and the origin of life.

17. Elaborate on the various biotechnological applications of alkaliphiles.

18. How cell wall and membranes of halophiles adapted with the environment?

19. Describe on the evolution of PCR enzymes.

20. Illustrate on the adaptive mechanisms of psychro tolerant bacterial pathogens.

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