

(6 Pages)

Reg. No. : .....

**Code No. : 10053 E    Sub. Code : GMMI 6 A**

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2020.

Sixth Semester

Microbiology — Main

Major Elective — MARINE MICROBIOLOGY

(For those who joined in July 2012 – 2015)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. Archaea were initially viewed as \_\_\_\_\_  
(a) osmophilic                      (b) extremophilic  
(c) basophilic                      (d) mesophilic
  
2. \_\_\_\_\_ is called 'Biological desert'  
(a) Lake                              (b) Pond  
(c) Oceans                          (d) None

3. Vegetative cells of \_\_\_\_\_ display high radiation resistance
- (a) *Deinococcus radiodurans*
  - (b) *Thermus aquaticus*
  - (c) *Sulfolobus acidocaldarius*
  - (d) *Thermobacteroides*
4. \_\_\_\_\_ is an iron oxidizing bacteria
- (a) *Flavobacterium*
  - (b) *Gallionella*
  - (c) *Camphylobacter*
  - (d) *Legionella*
5. \_\_\_\_\_ is the richest source of aromatic (carbon) compounds in nature
- (a) Lignin
  - (b) Sugar
  - (c) Wax
  - (d) Fat
6. Blue green algae that possesses special cells are called \_\_\_\_\_
- (a) Tissue
  - (b) Heterocyst
  - (c) Cell
  - (d) Root nodules

7. Paralytic shell fish poisoning is caused by \_\_\_\_\_
- (a) Vibrio
  - (b) Mercury
  - (c) Dinoflagellates
  - (d) Salmonella
8. \_\_\_\_\_ is responsible for the loss of fresh fish flavour
- (a) Aminoacids
  - (b) Inosine monophosphate
  - (c) Vitamin
  - (d) Copper sulphate
9. \_\_\_\_\_ is caused by adhesion of bacteria too the surface
- (a) Pleuston
  - (b) Newston
  - (c) Bio film
  - (d) None
10. \_\_\_\_\_ is used in the manufacture of riboflavin
- (a) Ashbya gossypii
  - (b) Bacillus
  - (c) Pseudomonas
  - (d) Vibrio

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Differentiate upwelling and down welling.

Or

- (b) Discuss swamp as an ecosystem, briefing on its characteristic features.

12. (a) How can you collect indigenous Marino bacteria from a depth of 100 m?

Or

- (b) What is the relationships between cell numbers and biomass?

13. (a) What is the green house effect? How does it work?

Or

- (b) Write short notes on phosphorous cycle.

14. (a) Discuss the role of fish as a substrate for bacterial growth.

Or

- (b) Brief out the spoilage of fresh fish.

15. (a) How is befouling of ship hulls controlled?

Or

(b) Write short notes on secondary metabolites.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) What are salt marshes? What important ecological roles do microorganisms play in salt marshes?

Or

(b) What is an estuary? Why must estuarine microbial populations exhibit dynamic properties with respect to salt and temperature tolerances?

17. (a) What are the temperature limits for microbial growth?

Or

(b) Compare barophilic and barotolerant microbial population. How could you collect barophiles and demonstrate that they were true barophiles?

18. (a) Describe the importance of sulfur cycling in deep-sea thermal vent habitats.

Or

- (b) Describe the nitrogen cycle. Which microbial populations are associated with each phase of the biogeochemical cycling of nitrogen?

19. (a) 'Microbial indicators of pollution' - Explain.

Or

- (b) Discuss about the development of probiotic products.

20. (a) Explain what are the bioactive compounds isolated from sea.

Or

- (b) What are microorganisms important in biotechnology field? Explain.
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