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M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Third Semester

Microbiology – Core

**ENVIRONMENTAL AND AGRICULTURAL
MICROBIOLOGY**

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. _____ developed the concept of 'Microbial chemoautotrophy'.
 - (a) Sergia Winogradsky
 - (b) Maritinus Beijerinick
 - (c) Ernst Haeckel
 - (d) Louis Pasteur

2. _____ grow best at normal atmospheric temperature.
- (a) Pschyophiles (b) Thermophiles
(c) Thermoduric (d) Mesophiles
3. Whooping cough is caused by _____.
- (a) Moraxella Catarrhalis
(b) Bordetella Pertussis
(c) Salmonella
(d) Shigella
4. Coliforms aerosolised from sewage treatment plants have been transported over _____.
- (a) 1.2 km (b) 20 cm
(c) 1.2 mm (d) 3 km
5. _____ grow at 400 atm and also grow at 1 atm.
- (a) Barotolerant
(b) Moderate barophiles
(c) Extreme barophiles
(d) Capnophiles

6. The following are pigmented bacteria except _____ live in marine habitat.
- (a) Erythrobacter
 - (b) Erythromicrobium
 - (c) Acetobacter
 - (d) Roseobacter
7. The Rhizobium nodules are sterilized with 0.1% _____ for 5 minutes.
- (a) Magnesium chloride
 - (b) Sodium chloride
 - (c) Potassium chloride
 - (d) Mercuric chloride
8. _____ bacteria can solubilise phosphorous from the bound form.
- (a) Bacillus
 - (b) Salmonella
 - (c) Shigella
 - (d) Vibrio
9. Apple scab is caused by _____.
- (a) Venturia inaequalis
 - (b) Aspergillus niger
 - (c) Cladosporium
 - (d) Mucor

10. _____ is/are fungal pesticides.
- (a) Beauvaria
 - (b) Entomophthora
 - (c) Hirsutella
 - (d) All of these

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Brief out the various extrinsic factors affecting the microflora of soil.

Or

- (b) Discuss the chemical properties of soil.

12. (a) What is aeromicrobiology? Discuss about droplet nuclei?

Or

- (b) Give an account of bacterial airborne diseases.

13. (a) Brief out the functions of marine microflora.

Or

- (b) Describe the biota of pond habitat with special emphasis on neuston.

14. (a) Write a short notes on rhizoplane.

Or

(b) Discuss the benefits of biofertilizers and role in agriculture.

15. (a) What are viral insecticides? Write some of their characteristics.

Or

(b) Write short notes on apple scab.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss in detail the carbon cycle in the environment.

Or

(b) Detail out the microbial flora of various soil types.

17. (a) Give an account of fungal airborne diseases.

Or

(b) Describe in detail the various deposition types used in the assessment of air quality.

18. (a) Write a detail notes on hydrothermal vent.

Or

(b) Describe the three stage test procedure for detection of faecal contamination.

19. (a) How do you isolate azospiriullum and use it as a seed inoculant?

Or

(b) Discuss about blue green algae biofertilizers.

20. (a) Write in detail about bacterial insecticide.

Or

(b) Write an essay on stem rust of wheat, its symptoms, etiology, life cycle and disease management.
