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PG 3rd Semester Examination, 2024

MICROBIOLOGY

PAPER – MCB-302.1 & 302.2

Full Marks : 50

Time : 2 hours

Answer all questions

The figures in the right hand margin indicate marks

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

PAPER : MCB-302.1

(Agricultural Microbiology)

GROUP – A

Answer any two questions from the following :

2 × 2

(Turn Over)

(2)

1. Distinguish between the composition of traditional compost and vermicompost.
2. Write the causes of declining crop productivity by using chemical fertilizers.
3. What is rhizospheric effect ? Write its importance.
4. Write the advantages of Liquid Bio-fertilizer over conventional carrier based Bio-fertilizers.

GROUP – B

Answer any two questions from the following :

5. Write the mass cultivation of *Azotobacter* with Indian standard specification of phosphate solubilizing bacteria. 4×2
6. Write the basic mechanisms of plant-growth promotion by various PGPR. $2 + 2$
7. Write the steps for the preparation of vermicompost. 4

(3)

8. What are phytoalexins ? Write the basic mechanism of plant defense system. $1 + 3$

GROUP – C

Answer any **one** question from the following :

8×1

9. What are Biopesticides ? Classify the biopesticides and give example each type, write the mechanism of bacteria as a biopesticide. $1 + 4 + 3$
10. What do you mean by integrated pest management system ? Write the different process of plant tissue culture. Write the mode of application of biogas. $2 + 4 + 2$

PAPER : MCB-302.2

GROUP – A

Answer any **two** questions from the following :

2×2

11. What are the importance of vaccinations ?

12. Write any two-laboratory diagnosis methods for *Mycobacterium tuberculosis* infection.
13. Which form of malaria parasites are infective to human ? What is the minimum dose of the parasites required for transmission by mosquitos to infect a human ?
14. What are the challenges in developing AIDS vaccine ?

GROUP – B

Answer any two questions from the following :

- 4 × 2
15. Why DNA vaccine is advantageous over other vaccines ?
 16. What is the most commonly used anticoagulant in blood bags ? What are the uses of the ingredients in the blood bags ?
 17. Describe the structure of antigens onto the RBC membrane.

(5)

18. Write down the function of HAT medium in the selection of hybridoma cells for monoclonal antibody production.

GROUP – C

Answer any **one** question from the following :

8 × 1

19. What is toxoid ? Cite two examples. Write down the name of toxins and their mode of action of the following pathogenic bacteria : *Clostridium botunilum*, *Vibrio cholerae* and *Corynebacterium diphtheriae* ? 1 + 1 + 6
20. Describe briefly the phases of vaccine development. 8

[Internal Assessment – 10 Marks]
