

2018

MICROBIOLOGY

[Honours]

PAPER – III

Full Marks : 90

Time : 4 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*

Illustrate the answers wherever necessary

[NEW SYLLABUS]

GROUP—A

Answer any two questions : 15 × 2

1. (a) What do you know about rhizosphere and rhizoplane?

(Turn Over)

(b) What is soil organic matter ? State the role of microbes in the decomposition of soil organic matter.

(c) Explain with examples :

(i) Synergism

(ii) Commensalism

(iii) Predation. $3 + (2 + 4) + (2 \times 3)$

2. (a) What is biofertilizer ? Why biofertilizers are preferred over chemical fertilizers.

(b) Discuss the carbon cycle with schematic outline. Mention the following with microbial involvement.

(i) Ammonification

(ii) Nitrification

(iii) Denitrification. $1 + 2 + 3 + (3 \times 3)$

3. (a) Write short notes on :

(i) Input devices

(ii) Super computers

(3)

(iii) Softwares

(iv) Binary codes

(b) Calculate correlation coefficient between X and Y.

X 1 2 3 4 5 6 7 8 9

Y 10 11 12 14 13 15 16 17 18

(2 + 2 + 2 + 3) + 6

GROUP-B

Answer any five questions : 8 × 5

4. (a) Write the characteristics of soil microbes.

(b) What is phytoremediation ? What is Bt toxin ?
Write down its mode of action. 4 + (1 + 3)

5. (a) Write down the isolation procedure of phyloplane microbes.

(b) What is heterocyst ? State its role in nitrogen fixation. 4 + (2 + 2)

6. (a) Briefly describe the disease cycle as downy mildew disease.
(b) Name the causal organism. 6 + 2
7. (a) What is bioplastic ?
(b) Write down its properties and application.
(c) What is biofilm ?
(d) What is Quorum sensing. 2 + 2 + 2 + 2
8. (a) Write down the procedure of microbial assessment of water sample.
(b) In which ecosystem (aquatic) microbial production is maximum and why ?
(c) Give two examples of microbes of this ecosystem. 4 + 2 + 2
9. (a) What is the formula for 't' test ?
(b) Write down the properties of 't' test.
(c) Where is it applied ?
(d) What are the storage devices ? 2 + 2 + 2 + 2

(5)

10. (a) What is histogram ?

(b) What are different types of computer memory and how do they function ?

(c) What are input and output devices ?

2 + (2 + 2) + 2

GROUP-C

Answer any five questions : 4 × 5

11. (a) What is PSMs ? Give example.

(b) What are cross inoculation group ? Give example.

2 + 2

12. Write major characteristics of ecto and endo mycorrhizae with one example of each. 2 + 2

13. Mention two biopesticides and biofungicides including their utilities. 2 + 2

14. Write symptoms and disease caused by *Xanthomonds oryzae*.

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15. Write two air-borne diseases with names of pathogens and control measures. 2 + 2
16. Write down the names of microbes involved in humus formation (step by step). 4
17. What are the functions of compiler and interpreter ? 2 + 2
18. What is frequency polygon ? How does histogram differ from bar diagram ? 4
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