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UG/II/MICB/H/III/17 (Old)

2017

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

[OLD SYLLABUS]

GROUP – A

Answer any two questions : 15 × 2

- 1. (a) Describe the role of various rhizosphere microorganisms in promoting plant growth.**

(Turn Over)

(b) Write down the role of following proteins/ genes in nitrogen fixation :

(i) nif genes

(ii) dinitrogenase reductase.

(c) Distinguish between ecto and endo-mycorrhizae.

(d) Write down applications of xenobiotics with suitable example. $4 + (2 + 2) + 4 + 3$

2. (a) What is kurtosis and skewness ?

(b) Write short notes on :

(i) Input devices

(ii) Mainframe computers

(iii) ROM

(iv) WWW.

(c) Write down the formula of correlation and regression. $(2 + 2) + (2 \times 4) + 3$

3. (a) What kind of interactions are generally seen in an estuarine ecosystem.
- (b) Name four important airborne pathogens and the diseases caused by them.
- (c) Mention activated sludge method.
- (d) Differentiate phyllosphere and Rhizosphere.
- 5 + 4 + 3 + 3

GROUP – B

Answer any five questions : 8 × 5

4. (a) Discuss the relationship between binary system and boolean operation.
- (b) Describe briefly the functions of a mother-board and a processor.
- (c) What is super computer ? 3 + 3 + 2
5. (a) What is bioplastic ? Write its properties and potential applications.
- (b) What are biofilms ? Why biofilms are important in human health ? (1 + 2 + 1) + (2 + 2)

6. (a) How soil phosphatase activity is measured ?
What is the importance of phosphatase in soil ?
- (b) Why soil is considered an ideal habitat for microbial growth ? $(3 + 3) + 2$
7. (a) What is compost ? How does it differ from vermicompost ?
- (b) Differentiate between symbiotic and associative nitrogen fixation. $(2 + 2) + (2 + 2)$
8. (a) Differentiate between competition and predation.
- (b) What is antibiosis ?
- (c) Write down the general principle of biopesticide production. $3 + 2 + 3$
9. (a) What is leghemoglobin ? Mention its utility in plants.
- (b) Describe the process of denitrification.
- (c) What is rhizosphere effect ? $3 + 3 + 2$

10. (a) Distinguish between the following :

(i) Commensalism and amensalism

(ii) Mutualism and synergism.

(b) Describe the role of air in transmission of pathogens.

(3 + 3) + 2

GROUP – C

Answer any five questions :

4 × 5

11. Give an account of biogas production.

4

12. What is pendrive ? How does it differ from a compact disc ?

2 + 2

13. Write short notes on :

2 + 2

(i) *Vibrio cholerae*

(ii) Trickling filter.

14. What is eutrophication ? What does it indicate about the quality of a water sample ?

2 + 2

15. What are IMVIC tests ? State its purposes.

2 + 2

(6)

16. What is bioremediation ? Mention two major benefits of this process with proper example. 2 + 2
17. What are positive and negative corelations ? Give example of each. 2 + 2