

B. Sc. DEGREE EXAMINATION, NOVEMBER 2016  
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY  
FIFTH SEMESTER

COURSE : MAJOR – CORE  
PAPER : MICROBIOLOGY  
TIME : 3 HOURS

MAX.MARKS:100

SECTION – A

ANSWER ALL QUESTIONS

(18 Marks)

I. Choose the correct answer

(5x1=5)

1. Bacteriophage is made up of  
a) Protein b) DNA c) Nucleoprotein d) Lipid and Protein
2. A free living anaerobic bacterium capable of fixing nitrogen is  
a) *Azotobacter* b) *Clostridium* c) *Rhizobium* d) *Streptococcus*
3. The bacteria are  
a) Unicellular b) Bicellular c) Multicellular d) Filamentous
4. Nitrites are oxidised to nitrate by  
a) *Nitrosomonas* b) *Nitrobacter* c) *Clostridium* d) *Azobacter*
5. The first step in purification of water is  
a) Flocculation b) Filtration c) Sedimentation d) Disinfection

II. Fill in the blanks:

(5x1=5)

6. The amount of oxygen dissolved in the water is used by the biological oxidation of organic load present in the water is referred to as \_\_\_\_\_
7. The \_\_\_\_\_ is the Zone of soil around the root with increased microbial growth and activity.
8. The \_\_\_\_\_ are the smallest of infectious agents which exist in the form of naked RNA without protein coat.
9. The smallest form among bacteria is \_\_\_\_\_.
10. The tobacco mosaic is produced by the virus \_\_\_\_\_.

III. True or False

(4x1=4)

11. Ground water is considered better for human consumption as its contaminants get removed or oxidized during course of percolation through different layers of the soil.
12. The soil microorganisms decompose complex organic compounds into simple inorganic substances and also carry on their resynthesis and maintain the recycling of C, N, S, P and other compounds.
13. The bacterial cell wall consists of lignin
14. *Vibrio* is virus.

**IV. Match the following (4x1=4)**

- |                  |   |                   |
|------------------|---|-------------------|
| 15. Crushed rock | - | Iwanowski         |
| 16. Chloramines  | - | Ammonification    |
| 17. TMV          | - | Trickling filters |
| 18. Pseudomonas  | - | Toxic substances  |

**V. Answer any six questions, each answer not exceeding 50 words (6x3=18)**

19. Endospore
20. Koch's postulates
21. Prions
22. Actinomycetes
23. Mesosomes
24. Mutualism
25. Any three properties of virus
26. Herpes simplex virus
27. Vaccination

**SECTION - B**

**ANSWER ANY FOUR QUESTIONS EACH ANSWER SHOULD NOT EXCEED 200 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY (4x6=24)**

28. Discuss the applications of Arbuscular mycorrhiza fungi
29. Give an account of bacterial and viral insecticides.
30. What are slime moulds? Discuss their systematic position.
31. Describe the steps involved in purification of drinking water.
32. Describe the structure of bacteria.
33. Explain the sampling techniques used to enumerate the microorganisms in air.

**SECTION - C**

**ANSWER ANY TWO QUESTIONS EACH ANSWER SHOULD NOT EXCEED 1000 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY (2x20=40)**

34. Describe the genetic recombination transduction and conjugation in bacteria.
35. What is biogeochemical cycle? Explain nitrogen and sulphur cycles.
36. Write an essay on sewage treatment and disposal.
37. Describe the structure of bacteriophage and discuss the lytic and lysogenic life cycles.

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