

## SECTION-A

### A. Fill in the blanks.

1. Microscope was discovered by-----.
2. Flagella present on all over the bacterial cell is termed as -----type.
3. Full form of NAG -----
4. Bacterial Endospore is thermotolerant on the presence of----- chemical.
5. Father of soil Microbiology-----
6. Father of soil microbiology is-----
7. Azolla is widely used as nitrogen fixers in ----- crop
8. NAG means -----
9. ----- is the enzyme that catalyses atmospheric nitrogen fixation.
10. Bacterial Endospore is thermotolerant on the presence of----- chemical.
11. ----- is a free-living Nitrogen fixing bacteria.
12. ----- is the bacterium that is involved in the mechanism of reduction of sulphate.
13. Gram negative bacteria shows ----- colour in gram staining.
14. Cell drinking is also known as-----
15. The antibiotic penicillin was discovered by -----
16. Azolla is widely used as nitrogen fixers in ----- crop
17. PGPR means -----
18. ----- is the enzyme that catalyzes atmospheric nitrogen fixation.
19. ----- refers to the vicinity of roots inhabited by maximum microbial growth.
20. ----- is the bacterium that is involved in the mechanism of reduction of sulphate.
21. The antibiotic penicillin was discovered by -----
22. Azolla is widely used as nitrogen fixers in ----- crop
23. PGPR means -----
24. ----- is the enzyme that catalyzes atmospheric nitrogen fixation.
25. ----- refers to the vicinity of roots inhabited by maximum microbial growth.

26.----- is the bacterium that is involved in the mechanism of reduction of sulphate.

27.The antibiotic pencillin was discovered by -----

## **SECTION- B**

### **B. Short notes**

1. Absorptive nutrition
2. Episome
3. Endoplasmic reticulum
4. Glycocalyx
5. Binary fission
6. Bio degradation
7. Vesicular arbuscular Mycorrhizae
8. Biological nitrogen fixation
9. Photolithoautotroph
- 10.Glycocalyx
- 11.Mycoparasitism
- 12.Episome
- 13.Bio degradation
- 14.Mycorrhizae
- 15.Heterocyst
- 16.Silage
- 17.Biological nitrogen fixation
- 18.Phyllosphere
- 19.Denitrification
- 20.Biopesticide
- 21.Bio degradation
- 22.Mycorrhizae
- 23.Heterocyst
- 24.Silage
- 25.Biological nitrogen fixation
- 26.Phyllosphere
- 27.Denitrification
- 28.Biopesticide

## SECTION- C

### I. Match the following

#### SET-A

- 1) Associative
- 2) Beverages
- 3) Cyanobacteria
- 4) Symbiotic
- 5) Biopesticide
- 6) Phosphate mobilizers

#### SET-B

- a) *Saccharomyces cerevisiae*
- b) *Azospirillum*
- c) *Rhizobium*
- d) *Anabaena*
- e) Vesicular arbuscular Mycorrhizae
- f) *Bacillus thuringensis*

### II. Match the following

#### SET-A

- 7) Associative
- 8) Beverages
- 9) Cyanobacteria
- 10) Symbiotic
- 11) Biopesticide
- 12) Phosphate mobilizers

#### SET-B

- a) *Saccharomyces cerevisiae*
- b) *Azospirillum*
- c) *Rhizobium*
- d) *Anabaena*
- e) Vesicular arbuscular Mycorrhizae
- f) *Bacillus thuringensis*

## SECTION-D

### Long type Question

1. Describe Nitrogen cycle in detail.
2. Comment on role of microorganisms in agriculture.
3. Application of microorganisms in biofuel production and biodegradation.
4. Write the difference between monoauxic and diauxic growth phase. Explain the different factors affecting the growth phase.
5. What do you mean by genetic recombination? Explain the transduction process with neat labelled diagram.
6. Describe Nitrogen cycle in detail. What do you mean by Biological nitrogen fixation and explain in brief?
7. Explain the ultrastructure of bacterial cell with neat labelled diagram.

- 8.** What is the scope of microbiology in Agriculture? Describe the Application of microorganisms in biofuel production and biodegradation in details.
- 9.** Describe Nitrogen cycle in detail.
- 10.** Comment on role of microorganisms in agriculture.
- 11.** Application of microorganisms in biofuel production and biodegradation