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**F - 1051**

**M.Sc. (Fourth Semester)  
EXAMINATION, May - June, 2022  
MICROBIOLOGY  
Paper Fourth (A)  
(Agricultural Microbiology)**

*Time : Three Hours]*

*[Maximum Marks:80*

**Note: Attempt all sections as directed.**

**(Section-A)  
(Objective/Multiple Choice Questions)  
(1 mark each)**

**Note: Attempt all question:**

**Choose the correct answer-**

1. Which of the following are constituent of organic matter-
  - (A) Protein
  - (B) Carbohydrate
  - (C) Lipid
  - (D) All of them

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2. What is the full form of FYM?
  - (A) Farm yield Map
  - (B) Farm Yard Manure
  - (C) Forest Yield Map
  - (D) Forest Yard Mass
3. Azolla belongs to which of the following groups-
  - (A) Bacteria
  - (B) Algae
  - (C) Aquatic fern
  - (D) Cyanobacteria
4. Which of the following is not xlibrogem fixing bacteria?
  - (A) Azotobacter
  - (B) Azospirillum
  - (C) Clostridium
  - (D) Escherichia Coli
5. Which of the following organism fix atmospheric nitrogen?
  - (A) Nostoc
  - (B) Anabaena
  - (C) Oscillatoria
  - (D) All of the above

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6. Name the genes responsible for  $N_2$  fixation?
- (A) Nif genes
  - (B) Nfi genes
  - (C) Nicotin genes
  - (D) Vanadium genes
7. Name the worm used in vermicomposting -
- (A) Prosthuma
  - (B) Eisenia Fetida
  - (C) Volvox
  - (D) Vesicular Arbuscular Mycorrhizae.
8. Presence of which of the following is required for Nitrogen fixation -
- (A) Anoxygenic
  - (B) Heterocyst
  - (C) Leg haemoglobin
  - (D) All of the above
9. Which of the following is a transgenic crop?
- (A) Transgenic tobacco
  - (B) BT Cotton
  - (C) Liger
  - (D) Transgenic banana

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10. Identify the bacterial biopesticides from the following.
- (A) Bacillus thuringensis
  - (B) Pseudomonas Syringea
  - (C) Both (A) & (B)
  - (D) None of the above
11. Which is not major Nutrient for plant growth?
- (A) N
  - (B) Zn
  - (C) P
  - (D) K
12. Nitrogen is found in the form of \_\_\_\_\_ in biosphere reservoir-
- (A)  $N_2$
  - (B)  $NO_3$
  - (C)  $NO_2$
  - (D)  $N_2O$
13. Mo Fe Co is part of which enzyme?
- (A) Amylase
  - (B) Polymerase
  - (C) Nitrogenase
  - (D) Lipase

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14. Biogeochemical cycles includes following cycles-

- (A) All of the below
- (B) Gaseous Cycle
- (C) H<sub>2</sub>O Cycle
- (D) Sedimentary Cycle

15. Which of the following is not a plant disease?

- (A) Mosaic
- (B) Arthritis
- (C) Blight
- (D) rot

16. Which of the following is not a fungal biofertilizer?

- (A) Laccaria
- (B) Aternaria
- (C) Gigaspora
- (D) Glomus

17. Which of the following is related to Nerosis-

- (A) Discolouration of Leaves
- (B) Degeneration of tissues
- (C) Degeneration of flowers
- (D) Bending of stem

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18. Test for antagonism by dual culture technique help to study-

- (A) Biological growth
- (B) Pollution control
- (C) Biological control
- (D) Population growth

19. Tundu disease of wheat is a \_\_\_\_\_ disease.

- (A) Bacterial
- (B) Viral
- (C) Fungal
- (D) Protozoan

20. Which of the following are symptoms of plant disease?

- (A) Necrosis
- (B) Leaf Curls
- (C) Chlorosis
- (D) All of the above

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**(Section-B)**

**(Very Short Answer type Questions)**

**(2 marks each)**

**Note : Attempt all question:**

1. Amanita
2. Leghaemoglobin
3. Heterocyst
4. Humus
5. Azospirillum
6. Ectomycorrhizae
7. Causal agent of Late blight of potato
8. Causal agent of Red rot of sugarcane.

**(Section-C)**

**(Very Short Answer type Questions)**

**(3 marks each)**

**Note: Attempt all question:**

1. VAM
2. Baculovirus
3. Yellow vein mosaic of Bhindi- Symptoms and control
4. Citrus canker- Symptoms and Control measures
5. Frankia
6. PSB
7. Vermicomposting
8. Nodule formation by Rhizobium

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**(Section-D)**

**(Long Answer type Questions)**

**(5 marks each)**

**Note: Attempt all question:**

1. Describe about Decomposition of organic matter to maintain fertility of soil.

**OR**

Describe the mechanism of phosphhate solubilization and phosphate mobilization

2. Describe mechanism and biochemistry of biological nitrogen fixation

**OR**

Describe the molecular biology of Nitrogenase enzyme.

3. Write an essay on biopesticides

**OR**

Describe sedimentary cycle with reference to sulphur mineral cycling.

4. Describe the symptoms, causal organisms and control measures of Tikka disease of groundnut.

**OR**

Describe the symptoms, causal organisms and control measures of Tobacco mosaic disease.

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