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DATE: **13-04-2018**

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27**

M.Sc MICROBIOLOGY- II SEMESTER

SEMESTER EXAMINATION- APRIL 2018

**MB 8314 - Agricultural Microbiology**

This question paper has **2** printed pages and **4** parts.

**(*For supplementary candidates only)***

***Attach this question paper with the answer script***

**Time: 3hrs Max Marks: 100**

**I. Answer any Five of the following 5 x 3 =15**

1. What are diazotrophs?
2. Write notes on sandal spike.
3. Discuss the symptoms of black stem rust caused by Puccinia graminis f. sp. tritici
4. What is the role of entomopathogenic fungi as biocontrol agents?
5. Describe the microbial diversity in biogas digesters.
6. List the unique features of virus based insecticides.
7. What is plant quarantine?

**II Answer any Five of the following 5x 6 = 30**

1. Write a note on phytotoxins .Give their importance in pathogenesis.
2. Discuss the use of antibiotics in plant disease control.
3. Explain the production of button mushrooms.
4. For the defense mechanisms, most plants produce antimicrobial compounds as secondary metabolites and enzymes in response to pathogen infection. Explain.
5. What are the salient features of plant quarantine order (Regulation of import into India) 2003
6. Write notes on citrus exocortis.
7. What are the applications of antisense RNA technology in agriculture.

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**III. Answer any Three of the following 3 x 15 = 45**

1. Diagrammatically describe the anaerobic digester and write notes on the production and significance of biogas.
2. Explain the role of host exudates in host parasite interaction.
3. Describe the role of antisense RNA technology in crop improvement..
4. Write about the etiologic agent, symptoms, diagnosis, control and prevention of downy mildew of grapes.
5. Discuss the role of phosphate solubilising bacteria, VAM and siderophores in plant growth promotion.

**IV. Answer the following 1x10=10**

1. a. A researcher carried out plant cell physiology study to monitor the changes occurring in plant cell during fungal infection. The researcher noticed increase in cAMP levels accompanied by nutrient mobilization in plant cells, which stage of infection does this change in physiology correspond to. Explain the structural changes seen in fungi at this stage.                                                               **4m**

b. What are the various modes of entry for a pathogen into a susceptible host plant?                                                                                                                                             **6m**

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