

2022

Microbiology

[P.G.]

(M.Sc. Third Semester End Examinations-2022)

PAPER-302

[AGRICULTURAL AND INDUSTRIAL MICROBIOLOGY]

Full Marks: 40

Time: 02 Hrs

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

Group-A (MCB-302.1)

Marks 20

1. Answer any two question from the following: **2x2= 4**
 - a. What is mean by protoplast culture? **2**
 - b. What do you understand by cellular differentiation and cellular dedifferentiation? **1+1**
 - c. What is rhizosphere and phyllosphere? **1+1**
 - d. What is anarobic composting? **2**

2. Answer any two question from the following: **2x4= 8**
 - a. What are endophytes? Give one example.Mention the role of endophytic organisms in plant. **1+1+2**
 - b. Classify the biopesticides and give example each type. **3+1**

(2)

- c. Write down the basic mechanism of biopesticide. Name two fungal biopesticides. 2+2
- d. Write down the preparation process of vermiwash and nutritional value of vermicompost. 3+1
3. Answer any one question from the following: 8x1= 8
- a. Why biofertilizer is preferred but not chemical fertilizer? Write down the different application processes of biofertilizers. Write down the steps of compost formation. 2+3+3
- b. What is mineralization? How does C:N ratio control the mineralization? Write down the biochemical steps with associated microbes for nitrogen cycle. 2+3+3

Group-B (MCB-302.2)

Marks 20

1. Answer any two question from the following: 2x2= 4
- a. Define conduction, convection and radiation mode of heat transfer. 2
- b. Differentiate between dead end filtration and cross flow filtration. 1+1
- c. Name different types of reactors and their applications. 1+1
- d. What is industrial scale up? 2

(3)

2. Answer any two question from the following: 2x4= 8
- a. Write down a short note on malting in beer production. 4
- b. Write the advantage and disadvantage of enzyme immobilization. 4
- c. Define thermal diffusivity and its significance. What are the disadvantages of CSTR? 2+2
- d. State the differences between Newtonian and non-Newtonian fluids. What is fed-batch fermentation 1+1+2
3. Answer any one question from the following: 1x8= 8
- a. Derive time of filtration equation for dead end filtration. 8
- b. Describe the champagne making process with a schematic diagram. 6+2