Microbiology (P.G.)
[CBCS]
M.Sc. Third Semester End Examination-2024
(Regular & Supplementary Paper)
PAPER-MCB-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 questions of the following:**   **2x2= 4**

a) Name two common plant pathogenic viruses with name of the diseases caused   1+1

b) What is meant by micro propagation?   2

c) What is super digested compost?   2

d) Write down the importance of rhizophere effect.   2

2. **Answer any two questions of the following:**   **2x4= 8**

a) Write down the advantage of biofertilizers over chemical fertilizer.   4

b) Write the ecological importance of carbon and nitrogen cycle to control the green house gas. 4

c) Describe the uses of Trichoderma as biocontrol agent.

d) Write down the process for the preparation of liquid farm yard manure. 4

3. **Answer any one question of the following:** 1x8=8

a) Write the importance of PGPF and PGPR on plants growth. Write about the Indian standard specification of *Azotobacter* sp for the commercial purpose. 3+3+2

b) What is vermiwash? Write down the effect of vermicompost on plant growth with nutrient value. Compare between vermicompost and traditional compost. 2+3+3

Group B (MCB-302.2)

(Marks 20)

1. **Answer any two questions of the following:** 2x2= 4

a) State the advantages of an airlift reactor over a stirred tank reactor. 2

b) What is D wash out? What is the significance of $D = \mu$? 1+1

c) Write down the role of gibberellic acid in malting process. 2

d) Mention the role of bentonite in wine production. 1+1

2. **Answer any two questions of the following:** 2x4= 8

a) The growth of an organism on glucose is described by the following Monod model parameters: $\mu m = 0.5h^{-1}$ and $Ks = 0.1g.1^{-1}$, if the concentration of glucose in the feed is $10g.1^{-1}$ and the dilution rate is set to $0.4h^{-1}$, then what would be the steady state concentration of glucose in the effluent? 4

b) Write down the applications of dextran. 4

c) Write a short note on industrial alcohol production process . What is batch culture? 3+1

d) What is down stream processing in bioprocess technology? Name four techniques by which down stream processing could be achieved?

3. **Answer any one question of the following:** 1x8=8

a) Write down the name of grapes primarily used for Champagne production. Describe the general manufacturing process of whiskey. What is the role of remueurs in champagne making? 2+4+2

b) Compare the merits of batch, fed batch, CSTR and immobilized fermentation. 2+2+2+2