

**2012**

**M.Sc.**

**3rd Semester Examination**

**MICROBIOLOGY**

**PAPER—MCB-303**

*Full Marks : 40*

*Time : 2 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

*Answer any two questions from each group.*

**Group — A**

**[Marks : 20]**

*Answer any two questions.*

1. (a) What are the different types of biofertilizers? What are the steps followed in development of large scale commercial Rhizobium inoculant production in India? 3+5
- (b) Distinguish between ammonification and nitrification. 2
2. (a) What do you mean by vermiculture? Write down the advantages of vermicompost. 2+3

(b) What is totipotency? Write a short note on micropropagation. 2+3

3. Write notes on any *four* of the following : 4×2½
- (a) Leghaemoglobin;
  - (b) Beneficial association between plant and micro-organism;
  - (c) Application of biopesticides;
  - (d) PGPR;
  - (e) Organic matter cycling.

**Group — B**

[Marks : 20]

Answer any *two* questions.

4. Write notes on (any *four*) : 2½×4
- (a) Disease triangle;
  - (b) Enzymes involved in plant disease development;
  - (c) Microbial toxins in plant disease;
  - (d) *Xanthomonas*;
  - (e) Systemic acquired resistance;
  - (f) Elicitors.
5. Give a detailed note on different stages in the development of disease. State Koch's postulate and its importance. 7+3
6. Discuss in detail the different types of structural defenses of plants. Briefly explain Horizontal and Vertical resistance. 7+3