

**2015**

**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.*

**Group — A**

[Marks : 20]

Answer any *two* questions.

1. (a) Point out the steps in nodule formation. Mention the Biochemical reaction that occurs in the root nodule. What is Photorhizobium? Define NOD factors and state its function.
- (b) Mention the advantages of liquid biofertilizer.

(2+2+1+3)+2

*(Turn Over)*

2. (a) Mention the various type of Beneficial association between plant and micro-organisms.
- (b) Briefly describe the methods of Composting. What is Super digested compost ?
- (c) What is Insecticidal Crystal Protein ? State the mode of action of insecticidal Crystal Protein.
- 2+4+(1+3)

3. Write notes on any *four* of the following : 4×2 $\frac{1}{2}$
- (a) Vermicomposting ;
- (b) Protoplast technology ;
- (c) Biogas production ;
- (d) Production and use of Azotobacter ;
- (e) Nutrient transformation.

**Group — B**

[Marks : 20]

Answer any *two* questions.

4. (i) Make a remark on the following with special reference to substrate use and principle microbes responsible for fermentation :
- (a) Cultured butter cream ; (b) Sauerkraut.

(ii) How do you increase the shelf life of food materials ?  
State the principle of food preservation.

(iii) Write the types of ionizing radiation that are appropriate for food irradiation and mention the attractive features of food preservation through radiation.

4+2+(1+3)

5. (i) Mention two micro-organisms each in vegetables & fish.

(ii) Give a flow sheet for the preparation of cheese.  
How cheese are ripened ?

(iii) Briefly opine your view regarding acceptability of Genetically modified foods.

2+(3+1)+4

6. Write notes on (any four) :

$4 \times 2 \frac{1}{2}$

(a) Mycotoxin ;

(b) Food safety ;

(c) Govt. regulatory practices and policies ;

(d) Spoilage of foods ;

(e) LAB.