**Exam. Code : 210002**
**Subject Code : 8438**

**M.Sc. (Botany) Semester—II**

**BOTC–523 : GENERAL MICROBIOLOGY**

Time Allowed : 3 Hours] [Maximum Marks—50

**Note :—** Attempt **ALL** the questions in Section–A, **SEVEN** questions in Section–B and **THREE** questions in Section–C.

## SECTION—A

1. Define bioremediation.
2. Who discovered differential staining technique for bacteria and in which year ?
3. How do viroids differ from viruses ?
4. Name any two airborne plant pathogens.
5. Give the magnification of objective lens with which immersion oil is used.
6. Give the binomial name of the bacterium that has been used extensively for genetic engineering.
7. If a specimen is viewed with a compound microscope using 10x eyepiece and 40x objective, how many times has the image been magnified ?
8. Name any two primary metabolites which are produced by microbes. 1×8=8

## SECTION—B

1. Comment on the various groups of bacteria classified on the basis of nutrition.
2. Briefly describe the various types of hepatitis.
3. Describe the method of sterilizing liquids.
4. Name and describe the various products obtained from genetically engineered microbes.
5. Briefly classify the plant viruses.
6. Enumerate the requisites of an ideal antimicrobial chemical agent.
7. Describe the process of composting.
8. Write a brief note on the toxins and extracellular enzymes of pathogenic bacteria.
9. How can radiations control microorganisms ?
10. Describe the various transmission modes of viruses.

$3 \times 7 = 21$

## SECTION—C

1. Give an account of the various organic acids produced commercially by microorganisms. Comment on their importance and their producers.
2. Describe in detail the ultrastructure and replication of TMV.

3. Why sewage water requires treatment. Describe the process of sewage treatment in detail.

4. With the help of labelled diagrams, give a descriptive comparison of general and specialized types of transduction.

5. Define aeromicrobiology. How can we sample bioaerosols ? Describe five each plant pathogens and five human pathogens which are airborne and most important.

$7 \times 3 = 21$