

Exam.Code:0907
Sub. Code: 6692

1078
B.E. (Biotechnology)
Third Semester
BIO-312/302: Microbiology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following briefly:-

- a) Who are microaerophiles?
- b) Define mutualism and give an example.
- c) Name the two goals of classification.
- d) Denitrification is not a favourable process for the agricultural soil. Why?
- e) How can you sterilize: antibiotics, glassware
- f) Replica plating technique was given by _____.
- g) Define growth rate- Give its mathematical representation.
- h) When DNA gets transferred from one cell to another with the help of phages, what is the process called?
- i) _____ component of a bacterial cell can provide toxicity.
- j) Name the protein present in flagella. (10x1)

UNIT - I

- II. a) Give contributions of the following scientists towards the growth of microbiology:
Robert Koch, Frederick Griffith, Sergei Winogradsky, Leeuwenhoek, John Tyndall
- b) Viruses have a unique way of self propagation. How do they achieve it? (5,5)
- III. a) Why is preservation of microbial cultures important? What are the different approaches to achieve it? Explain the underlying principle of each.
- b) What is differential staining? Give example. (8,2)

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(2)

- IV. a) Explain the growth curve of bacteria.
b) Explain in detail the cell wall of a Gram negative bacterial cell (5,5)

UNIT – II

- V. a) Explain conjugation as a means of recombination in bacteria.
b) Differentiate between point mutations and frameshift mutations. (6,4)
- VI. a) Give an example of anaerobic respiration in bacteria
b) Draw a neat and well labelled nitrogen cycle (5,5)
- VII. Why is characterization of microorganisms important? Explain its different categories. (10)

x-x-x