

2071
B.Sc. (Hons.) Biotechnology
Second Semester
BIOT- 206-T: General Microbiology

Time allowed: 3 Hours

Max. Marks: 67

NOTE: Attempt five questions in all, including Question No. IX (Unit-V) which is compulsory and selecting one question each from Unit I - IV.

x-x-x

Unit I

Q I. a) Who discovered Antibiotics? Discuss this path breaking discovery. What role it plays in health care.

b) Write short note on contribution by i) Joseph Lister ii) A. Leewenhock (6,7)

QII. a) Describe about the principle and operation of Phase contrast microscope? How it differs from compound microscope.

b) Explain the principle of Electron Microscopy? What are the differences between SEM and TEM? (6,7)

Unit II

QIII. a) Describe the different characteristic features of Fungi? How many groups of fungi are there? How fungi are different from bacteria?

b) Write about nucleic acid hybridization and its significance in bacterial classification. (6,7)

QIV. a) Draw a well labelled diagram of Gram negative bacteria. Write names of few Gram negative bacteria responsible for human diseases.

b) What are endospore? Why are they form? Give the mechanism of sporulation in bacteria? (6,7)

Unit III

QV a) What do you mean by nutritional biodiversity of Bacteria? Discuss about the significance of high G+C content in thermophiles.

b) Discuss about the different phases of growth curve in Bacteria. (6,7)

P.T.O.

(2)

QVI.a) What is the difference sterilization and disinfection? Which is better to be used in microbiological experiments and why?

b) Discuss the different chemical methods used for sterilization? Which sterilization technique can be used for the following i) Culture broth ii) Glass petri plate iii) Disposable Syringes iv) Hormone solution v) Inoculating needle (6,7)

Unit IV

QVII.a) Discuss about the role of innate immunity in protection against microbial invasion? What are the different components of innate immunity?

b) What is the role of T-cells and B-cells in providing immunity against viral invasion? (6,7)

QVIII. a) What are commensals? What role they play in human health?

b) What are pathogens? Discuss about different diseases caused by the microbial pathogens in humans. (6,7)

Unit V

QIX. i) What is generation time?

ii) What are stains? Give the examples

iii) Why 70 % alcohol is more effective in killing bacteria than 100% alcohol?

iv) What is a resolution of microscope? How it can be enhanced?

v) Which microscope can be used for visualising pilli/flagella on bacterial cell and why?

vi) Give the name of different phases of bacterial growth curve? Which one is the most productive in terms of viable cell number?

vii) What causes food poisoning? Which bacteria is responsible for it? How can we avoid it?

Viii) What is tyndallisation? Who invented the process?

ix) What is pasteurization? Is it better than sterilization and why?

x) What is role of Nucleic acid sequencing in bacterial classification? (10X1^{1/2})