MS – 342

# II Semester B.Sc. Examination, May 2016
## (CBCS (F + R) – 70 Marks 2014 – 15 and Onwards)
## BIOTECHNOLOGY – II
## Microbiology and Biostatistics
## (R – 70 Marks – 2011-12 and Onwards
## R – 60 Marks – Prior to 2011-12)



Time : 3 Hours Max. Marks : 70/60

***Instructions :*** *1) Part – I and Part – II must be answered in **separate** Booklets.*
*2) Part – **I**, Q **IV** Section **D** and Part **II** Q. **II** is for 2011-12 batch onwards.*
*3) **70** marks for students of 2011-12 batch onwards and CBCS.*
*4) **60** marks for students prior to 2011-12.*
*5) Draw **neat** labelled diagrams **wherever** necessary.*

## PART – I
## (Microbiology)

### SECTION – A

1. Answer the following : (4×2=8)
   1) Joseph Lister.
   2) Endospore staining.
   3) Cholera.
   4) Photophosphorylation.

### SECTION – B

II. Answer **any two** of the following : (6×2=12)
   5) Describe the structure of $T_4$ bacteriophage.
   6) Explain the photosynthetic apparatus in bacteria.
   7) Write a short note on economic importance of algae.

P.T.O.

SECTION – C

III. Answer **any two** of the following : (2×10=20)

8) Differentiate between TEM and SEM in detail.

9) Explain the classification of fungi in detail.

10) Write short notes on :

a) Pneumonia b) Transmission of HIV

c) Treatment for tuberculosis d) Hepatitis B.

11) Explain the role of each enzyme in glycolysis. Add a note on anaerobic fate of pyruvic acid.

SECTION – D

**(From 2011-12 Batch Onwards + CBCS)**

IV. Answer the following : (5×1=5)

12) Germ theory of disease was proposed by

a) Robert Koch b) Louis Pasteur

c) Edward Jenner d) Alexander Fleming

13) What are endotoxins ?

14) Name any two stains used for negative staining.

15) Expand TMV and HBV.

16) State the first law of thermodynamics.

PART – II

**(Biostatistics)**

(To be answered in a **separate** booklet)

**Q. II is for students of 2011-12 onwards and CBCS.**

I. Answer **any four** of the following : (4×5=20)

1) Represent the following data by a simple bar diagram.

| **Weekly wages (In Rupees)** | 5000 | 8000 | 10,000 | 12,000 | 15,000 |
|---|---|---|---|---|---|
| **No. of workers** | 14 | 28 | 36 | 12 | 10 |

2) The average height of 25 soldiers is 169 cms, and the average height of 32 sailors is 167 cms. Find the average height of both soldiers and sailors combined together.

3) Calculate the mean and variance from the data recorded on length of leaves.

X : length of leaves in cms – 7.5, 6.5, 10.0, 7.0, 6.6, 9.5, 7.6, 8.0, 6.7, 9.0.

4) In a study on patients the following data was obtained. Find the standard deviation of the data.

| **Age (in years)** | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 |
|---|---|---|---|---|---|---|---|
| **No. of cases** | 1 | 0 | 1 | 10 | 17 | 38 | 9 |

5) Define Chi-square test and student-t-test. Write down the properties of Chi-square distribution.

6) The mortality case for a certain disease is 0.10 and suppose 10 people in a community contract the disease, what is the probability that (i) Non will survive (ii) Fifty percent will die ?

II. Answer the following : **(5×1=5)**

7) Define frequency distribution.

8) What is mean deviation ?

9) Define null hypothesis.

10) What is a cumulative frequency diagram ?

11) What is standard deviation ?

---