



SE – 191

**II Semester B.Sc. Examination, September 2020**  
**(CBCS – 2014-15 and Onwards) (F+R)**  
**BIOTECHNOLOGY – II**  
**(General Microbiology and Biostatistics)**

Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) Part – I and Part – II must be answered in **separate** booklets.  
2) Draw **neat** labelled diagrams **whenever** necessary.

**PART – I**  
**Section – A**

I. Answer the following :

**(4×2=8)**

- 1) Eye piece
- 2) Negative staining
- 3) Joseph Lister
- 4) Aerobes.

**Section – B**

II. Answer **any two** of the following :

**(2×6=12)**

- 5) What are bacteriophage ? Explain lambda phage in detail.
- 6) Explain the construction and working principle of SEM.
- 7) Explain the branches of microbiology.

**Section – C**

III. Answer **any two** of the following :

**(2×10=20)**

- 8) What is sterilization ? Explain in detail the sterilization by heat.
- 9) What are fungi ? Explain the classification and reproduction in detail.
- 10) Define photosynthetic bacteria and add a note on photosynthetic pigments in prokaryotes.
- 11) With neat labelled diagram explain HIV and discuss AIDS in detail.

P.T.O.



## Section – D

IV. Answer the following :

(5×1=5)

- 12) UV rays
- 13) Peritrichous
- 14) Basidiomycetes
- 15) Mycoplasma
- 16) Capsid.

## PART – II

I. Answer **any four** of the following :

(4×5=20)

- 1) The following table gives marks obtained by 10 students.

<b>Roll No.</b>	1	2	3	4	5	6	7	8	9	10
<b>Marks Obtained</b>	66	67	68	69	70	70	69	68	67	66

Calculate the arithmetic mean and median of marks among the students.

- 2) Represent the following data by using simple bar diagram.

China	45
Germany	17
India	35
Newzeland	28
Sweden	16

- 3) What is standard deviation ? Calculate the standard deviation for the following data :

<b>Class Interval</b>	51 – 55	56 – 60	61 – 65	66 – 70	71 – 75	76 – 80
<b>Frequency</b>	7	15	30	25	14	9



- 4) Write short notes on :
  - a) Binomial distribution
  - b) Chi-square.
- 5) A bag contains 5 green and 3 yellow fruits. Two fruits are taken at random one after the other without replacement. Find the probability that both are yellow.
- 6) Explain the
  - 1) Role of statistics in life sciences.
  - 2) Different measures of central tendency.

II. Answer the following :

(5×1=5)

- 7) Statistical hypothesis
- 8) t-test
- 9) Formula to calculate arithmetic mean in continuous series.
- 10) Poisson distribution
- 11) Standard error.

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