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**AC-234675**

**M.Sc. (Semester-I) Examination,  
Dec.-Jan. (2025-26)**

**MICROBIOLOGY**

**( General Microbiology )**

***Time Allowed : Three Hours***

***Maximum Marks : 70***

**Note :** Question paper is divided into **four** sections. Attempt questions of **all four** sections as per direction. Distribution of marks is given in each section.

**SECTION-A**

**( Objective Type Questions )**

**Note :** Attempt **any ten** questions. Each question carries **1** mark.

[10×1=10]

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( 1 )

[P.T.O.]



1. (i) Resistance to antibiotics in Bacteria is carried in the :
- (a) Intron
  - (b) Exon
  - (c) Plasmid
  - (d) Heteromere
- (ii) Fertility factor possessing chromosomal gene is known as :
- (a) F-factor
  - (b) F' factor
  - (c) Hfr
  - (d) R-factor
- (iii) The major constituent in Agar is :
- (a) Polysaccharide
  - (b) Polypeptide
  - (c) Fats
  - (d) Amino acids

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- (iv) Example of Anaerobic medium :
- (a) EMB medium
  - (b) Wilson-Blair medium
  - (c) MacConkey broth medium
  - (d) Robertson's Cooked meat medium
- (v) Growth curve does not include :
- (a) Lag phase
  - (b) Log phase
  - (c) Stationary phase
  - (d) Synchronous phase
- (vi) Which of the following has polar nodule on both the ends?
- (a) Akinetes
  - (b) Hormogonia
  - (c) Heterocyst
  - (d) None of these

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[P.T.O.]



(vii) Two organisms which are very closely related have :

- (a) Similar Mol % G+C value
- (b) Different Mol % G+C value
- (c) Similar Mol % G+C value and heteroduplex formation
- (d) Heteroduplex formation only

(viii) Transduction is mediated by :

- (a) F factor
- (b) Cosmids
- (c) Phage Vectors
- (d) Plasmid vectors

(ix) Cyanobacteria are :

- (a) Oxygenic without nitrogenase
- (b) Non-Oxygenic without nitrogenase
- (c) Oxygenic with nitrogenase
- (d) Non-Oxygenic with nitrogenase

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(x)

Temperature and time period commonly used for the sterilization of glassware using hot air oven :

- (a) 180° C for 30 minutes
- (b) 75° C for 30 minutes
- (c) 121° C for 15 minutes
- (d) 160° C for 45 minutes

(xi) Which of the following virus possess single stranded linear genome?

- (a) TMV
- (b) Poxvirus
- (c) Baculovirus
- (d) Reovirus

(xii) Reverse transcriptase produces :

- (a) DNA from RNA
- (b) RNA from DNA
- (c) cDNA from RNA
- (d) None of the above

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[P.T.O.]



## SECTION-B

### ( Very Short Answer Type Questions )

**Note:** Attempt any five questions. Each question carries 2 marks. (Maximum word limit : 25-30 words) [5×2=10]

2. Write the difference between any five of the following :

- (i) Selective media and Enrichment media
- (ii) Viroids and Prions
- (iii) Actinomycetes and Fungi
- (iv) Plasmid and Episome
- (v) Positive Sense and Negative Sense RNA virus
- (vi) Auxotrophs and Prototrophs
- (vii) Lytic and Lysogenic cycle

## SECTION-C

### ( Short Answer Type Questions )

**Note:** Attempt any five questions. Each question carries 4 marks. (Maximum word limit : 250 words) [5×4=20]

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(i)

Briefly explain the mode of microbial nutrition.

(ii)

What is ribotyping? How does it help in the identification of bacteria? Explain.

(iii)

Write a brief account on the importance of fungi.

(iv)

What are ray fungi? Explain in brief.

(v)

Briefly explain the structure and function of Gram negative bacterial cell wall.

(vi)

What is a pure culture? Explain different methods used to obtain pure culture of bacteria.

(vii)

Write the importance of Cyanobacteria.

## SECTION-D

### ( Essay Type Questions )

**Note:** Attempt any three questions. Each question carries 10 marks. (Maximum word limit : 500 words) [3×10=30]

4.

(i) What is microbial growth? Explain growth curve and factors affecting growth in detail.

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- (ii) Explain the importance of Bergey's Manual in microbial taxonomy.
  - (iii) Describe the process of bacterial transformation in detail.
  - (iv) Explain the general characteristics, cell structure and importance of Algae.

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