

[This question paper contains 2 printed pages.]

**Sr. No. of Question Paper : 6519**

**D**

**Your Roll No.....**

Unique Paper Code : 253301

Name of the Course : **B.Sc. (Hons.) Microbiology**

Name of the Paper : Virology (MIHT-304)

Semester : III

Duration : 3 Hours

Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions.

1. Define the following terms (**any 10**) :

- (i) Abortive infection
- (ii) Attenuated viruses
- (iii) Concatamers
- (iv) Defective virus particle
- (v) Multipartite virus
- (vi) Sequence dependent genome packaging
- (vii) Multiplicity of infection
- (viii) Propagative virus
- (ix) Viral titre
- (x) Early proteins
- (xi) Tumor suppressor gene

(1.5×10=15)

2. (a) Discuss the discovery of viruses. (4)
- (b) Give the important contributions of following virologists :
  - (i) Sir Peyton Rous
  - (ii) Renato Dulbecco
  - (iii) Jonas Salk (3)

*P.T.O.*

- (c) Give the salient features of viroids. (3)
- (d) Differentiate between Satellite viruses and satellite nucleic acids with suitable examples. (3)
- (e) What is triangulation number ? (2)
3. Differentiate between the following :
- (i) Differential and density gradient centrifugation for viral purification
  - (ii) Type I and Type II interferons
  - (iii) PrP<sup>c</sup> and PrP<sup>sc</sup>
  - (iv) Persistent and non-persistent modes of viral transmission
  - (v) Orthomyxoviridae and Paramyxoviridae (3×5=15)
4. (a) From where can you isolate the *Bacillus* and *Shigella* phages. (2)
- (b) Discuss the application of viruses. (5)
- (c) Discuss viral structure with examples. (5)
- (d) Discuss the types of cellular receptors used by viruses. (3)
5. (a) Name the family to which the following viruses belong (**any six**) :  
Ebola, swine flu, lambda phage, M-13 phage, maize streak virus, cauliflower mosaic virus, hepatitis A virus, dengue virus (6)
- (b) Explain the one step multiplication curve in bacteriophages. (2.5)
- (c) Name any three oncogenic DNA viruses. (1.5)
- (d) Discuss the Baltimore classification of viruses with examples. (5)
6. (a) Diagrammatically depict the replication strategy of the hepatitis B virus or adenoviral genome. (5)
- (b) Explain Alternate splicing and Capping-tailing in viral genomes. (3)
- (c) Discuss the different types of recombinant viral vaccines with examples. (5)
- (d) Give one example each of the protease inhibitor and ion channel blocking antiviral compound. (2)