

This question paper contains 4 printed pages]

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S. No. of Question Paper : 8712

Unique Paper Code : 253301

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Name of the Paper : MIHT-304 Virology

Name of the Course : B.Sc. (H) Microbiology (Part II)

Semester : III

Duration : 3 Hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Question No. I is compulsory.

Attempt Five questions in all.

All questions carry equal marks.

1. (a) Give *one* example for each of the following (any ten) : 1×10=10.
- (i) Terminal cohesive ends
  - (ii) Overlapping genes
  - (iii) Pararetroviruses
  - (iv) Polycistronic RNA
  - (v) Bunyavirus
  - (vi) NRTI
  - (vii) Protease inhibiting antiviral compound
  - (viii) Phycophage
  - (ix) Plant satellite virus
  - (x) Helical symmetry
  - (xi) Nematode transmitted virus.

P.T.O.

(b) Expand the following abbreviations (any five) :

1×5=5

- (i) RNP
- (ii) ORF
- (iii) HCC
- (iv) BSE
- (v) CCCVd
- (vi) HTLV.

2. Define any *ten* of the following terms :

1½×10=15

- (1) Nucleocapsid
- (2) Apo-receptor
- (3) CPE
- (4) DI particle
- (5) Neutralizing antibody
- (6) Multivalent Vaccine
- (7) Direct repeats
- (8) Anchorage dependency
- (9) Multipartite virus
- (10) Circular permutation
- (11) Transtadial transmission
- (12) Carcinoma

3. (a) Give properties of a regular icosahedron structure of viruses. 2
- (b) Discuss the modes of entry of animal viruses with examples. 4
- (c) Discuss the genome replication of Vaccinia virus. 5
- (d) Give the contributions of the following scientists (any four) : 1x4=4
- (1) Howard Temin
  - (2) Theodor Diener
  - (3) Albert Sabin
  - (4) John Enders
  - (5) Harold Varmus.
4. (a) What are Viroids? Discuss their mode of replication. 4
- (b) Discuss the mode of oncogenesis in Papilloma virus. 5
- (c) Discuss the mode of action of Amantadine and Enfuvirtide. 4
- (d) Differentiate between Lambda and P1 phage. 2
5. (a) Differentiate between any four of the following : 4x3=12
- (i) Horizontal and vertical transmission
  - (ii) Live and killed vaccines
  - (iii) Lytic and lysogenic cycle
  - (iv) Proto-oncogene and viral oncogene
  - (v) Density gradient and Differential centrifugation
- (b) Describe the retrograde theory of viral origin with its merits and demerits. 3

6. (a) Discuss the role of viruses in gene therapy. 3
- (b) Explain the technique of phage display and give any two of its applications. 3
- (c) Differentiate between the following viral families : 3×2=6
- (i) Retroviridae and Hepadnaviridae
  - (ii) Microviridae and Myoviridae
- (d) Discuss the method for vaccine production for Hepatitis B virus. 3