

This question paper contains 3 printed pages]

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S. No. of Question Paper : 5674

Unique Paper Code : 2532012403

Name of the Paper : Virology

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

Semester : IV

Duration : 3 Hours

Maximum Marks : 90

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

Attempt any five questions.

All questions carry equal marks.

1. (a) Give an example for each of the following (any 15) : 15×1=15

- (i) Mycovirus
- (ii) Animal virus with double stranded DNA
- (iii) First animal virus to be discovered
- (iv) Family containing segmented single stranded RNA viruses
- (v) First viral vaccine
- (vi) Disease caused by Viroids
- (vii) Virus with inner membrane
- (viii) Largest virus

P.T.O.

- (ix) Protease inhibiting antiviral drug
 - (x) Virus transmitted by *Aedes aegypti*
 - (xi) Bipartite virus
 - (xii) Virus with fusion protein
 - (xiii) Viral oncogene
 - (xiv) Continuous cell line
 - (xv) Covid 19 virus responsible for pandemic
 - (xvi) Virophage.
- (b) What are unusual bases ? Give their significance. 3
2. (a) Mention the contributions of the following scientists in the field of Virology. 3×1=3
- (i) Theodor O Diener
 - (ii) Fredrick Twort
 - (iii) Renato Dulbecco.
- (b) Discuss the salient features of Hepatitis B virus genome. 3
- (c) Describe the various types of symmetry of viruses. 4
- (d) Comment on virus like particles and their significance in medicine. 4
- (e) Write a note on one-step multiplication curve of Bacteriophages. 4
3. (a) Explain the mode of action of interferons with suitable diagram. 4
- (b) Explain the salient features of segmented or non-segmented genome of viruses with suitable example. 4
- (c) Discuss the replication of Gemini virus or $\phi \times 174$. 4
- (d) Name any one DNA containing and one RNA containing oncogenic viruses. 2
- (e) Discuss the emergence of variants of Corona virus and their global impact. 4

4. (a) What is the principle of Differential Centrifugation ? Explain how it is used to purify the viruses with the help of a suitable diagram. 4
- (b) What are terminally redundant ends in bacteriophages ? Explain the role of early and late proteins in bacteriophages. 5
- (c) Differentiate between semi-persistent and persistent mode of transmission of viruses in plants. 5
- (d) Comment on droplet transmission of viruses. 2
- (e) What are Virusoids ? 2
5. (a) Diagrammatically explain the replication of HIV. 5
- (b) Differentiate between subunit vaccines and recombinant viral vaccines. 4
- (c) Write the salient features of satellite viruses. Give *two* examples each of plant and animal satellite viruses. 5
- (d) What is the significance of overlapping genes in viruses ? Explain with the help of a suitable example. 4
6. (a) Define antiviral drugs. Explain the mode of action of Azidothymidine OR Ritonavir. 5
- (b) What are emerging viruses ? Discuss Zika virus or H1N1 and associated epidemics. 5
- (c) Explain the assembly of Picornavirus. 4
- (d) Comment on any *two* methods of cultivation of animal viruses. 4