[This question paper contains 4 printed pages]

Your Roll No. : .....

Sl. No. of Q. Paper : **1826** **GC-4**

Unique Paper Code : 32531204

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

Name of the Paper : Virology

Semester : II

Time : 3 Hours ***Maximum Marks : 75***

Instruction for Candidates :

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

(b) Attempt **five** Questions in **all**.

(c) **All** questions carry equal marks.

1. (a) Briefly explain the following (any **7**) : 7×2=14

(i) Giant viruses

(ii) Burst Size

(iii) Viruses containing unusual bases

(iv) Latent period

(v) Oncogenes

(vi) Fusion protein

(vii) Antigenic shift

(viii) Syncytia

P.T.O.

(b) Name any two viruses that can be misused for Bioterrorism. 1

2. (a) Differentiate between the following : 4×3=12

(i) Prp^{c} and Prp^{sc}

(ii) Persistent & Non-persistent infection

(iii) Diploid cell strain and cell line

(b) Name the following : 1×3=3

(i) Nucleoside analog inhibitor of reverse transcriptase

(ii) Uncoating inhibitor

(iii) A new emerging virus reported in 2015

3. (a) Write a note on subunit vaccines. 3

(b) Give an example of a virus with conical capsid. Draw a well labelled diagram of the virus. 3

(c) Discuss the salient features of the genomes of 3+3=6

(i) Hepatitis B virus

(ii) T4 phage

(d) Discuss the assembly of polio virus. 3

4. (a) Describe the replication of the genome of $\phi \times 174$ with the help of a well labelled diagram. 5

(b) Comment on the mode of action of interferons. 4

(c) Discuss HAART therapy. 4

(d) Name the cellular receptor of the following viruses : 2

(i) Influenza virus

(ii) Polio virus

5. (a) Discuss the genetic control of lytic cycle in lambda phage. 4

(b) Write a note on Escaped gene theory of viral origin. Discuss its merits and demerits. 3

(c) Discuss the phage display technique. 3

(d) Give an example of the following (any **five**) 5

(i) Virions with an internal membrane.

(ii) Multipartite virus.

(iii) Viruses with ambisense genome.

(iv) A class VII plant virus.

(v) First human virus to be discovered.

(vi) A virus with capping and tailing of the genome.

6. (a) Outline the steps involved in purification of viruses. 4

(b) Discuss the mechanism of oncogenesis of any DNA virus. 3

(c) Name the scientists associated with the discovery of the following : 1×3=3

(i) Viroids.

(ii) One step multiplication curve.

(iii) Killed polio vaccine.

(d) Discuss the naked and enveloped viruses with two examples of each. 4

(e) Define lysogenic conversion giving a suitable example. 1