

M.Sc. Examination, 2018
Semester – II
Biotechnology
Core Course-VIII
(Virology)

Time: 3 Hours

Full Marks: 40

Questions are of value as indicated in the margin.

Answer question number **1** and *any three* from the rest

1. Answer *any five* of the following: 5×2=10
- (a) Viruses can be separated into capsid proteins and nucleic acid. When placed back together, these two parts will self assemble into new infectious virus particles. You purify the NUCLEIC ACID FROM TOMATO mosaic virus and the PROTEIN FROM BEAN mosaic virus. Then you combine these two parts, and they self-assemble into infectious viruses. What happens when these newly assembled (hybrid) viruses are rubbed (with an abrasive) onto BEAN LEAVES?
 - (b) The most common cause of aseptic meningitis of viral source.
 - (c) Protection against influenza A virus in a non-immuned individual can be achieved through the administration of a drug that interferes with Viral adsorption and penetration. State whether it is true or false with explanation.
 - (d) Show with example the structural symmetry of viruses.
 - (e) Which one of the infection routes is most often involved in the neonatal transmission of hepatitis B virus?
 - (f) How can we quantify viral titer?
 - (g) Why do retroviruses convert their RNA genome to DNA (using reverse transcriptase) and then transcribe it back into viral RNA (and translate that into viral proteins).
 - (h) What causes the viral plaques that appear on a bacterial lawn to stop growing larger?
 - (i) The promoters for mRNA encoding early proteins in viruses like T4 have a different sequence than the promoters for mRNA encoding late proteins in the same virus. Explain how this benefits the virus.
 - (j) Since viral infection leads to more viral particles being formed, explain why the “growth curve” for viruses is stepped rather than smooth (as encountered in bacterial growth).
2. What are the unclassified biological agents in animal virology? Describe viroids. Explain the mechanisms of Prions action on human. 3+3+4=10

P.T.O.

(2)

3. What is the usual symptoms developed due to Plant virus infection? How does virus penetrated and transmit in plant systems. 5+5=10
 4. What should be the key characteristics of antiviral drugs? Classify the antiviral drugs with examples. Describe HAART. 3+4+3=10
 5. Define and classify Human herpesvirus. Compare different human herpes virus with example. 4+6=10
 6. Short Notes (*any four*) 2.5×4=10
 - (a) Blue tongue virus
 - (b) Baltimore classifications
 - (c) Myxovirus
 - (d) Pro-drug
 - (e) Zoonosis
 - (f) Latency of Herpes virus
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