M.Sc. Semester II Examination (2022)
Biotechnology
Course/Paper – VIII (Virology)

Time: 3 Hours   **Full Marks: 40**

Questions are of value as indicated in the margin.

Answer question no. **1** and ***any three*** from the rest.

1. Answer any five questions: 5X2=10

    a) Show with example the structural symmetry of viruses.

    b) Would a person who has never been in contact with the varicella-zoster virus be at risk of developing chickenpox or shingles if they come in close contact with a person with shingles? Explain your reasoning.

    c) A 44-year-old CMV antibody negative man is given a lung transplant from a CMV antibody positive donor. Comment on it with explanation.

    d) Describe Zika Virus.

    e) Plant viral disease transmission.

    f) It was observed that the radius of an approximately circular plaque of infected cells grew to 1.45 mm in just 3 days. They measured the distance between adjacent cells to be 0.037 mm to obtain the apparent time for the lytic cycle (from infection to lysis). They compared this time to the actual rate at which new virions are formed: 5 to 6 hours. Predict the radius of infection if the infection process involved a sequence of entry, replication, lysis, and infection of an adjacent cell.

    g) Which step in the replication cycle of viruses do you think is most critical for the virus to infect cells? Explain why

    h) All DNA viruses must replicate in the nucleus and all RNA virus must replicate in cytoplasm. Explain whether the statement is true or false.

2. Explain with Justification (any four):   2.5×4=10

    a) Interferon acts as an anti-viral drug.

    b) Fluorouracil is a pro-drug.

    c) Antiviral not work during latency

    d) EBV can cause different disease depending on condition

    e) Acyclovir is a broad-spectrum antiviral but Cidofovir not

    f) HAART - Highly active antiretroviral therapy