



WEST BENGAL STATE UNIVERSITY

B.Sc. Programme 6th Semester Examination, 2021

MLBGDSE04T-MOLECULAR BIOLOGY (DSE2)

VIROLOGY AND EPIDEMIOLOGY

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

1. Answer any **ten** questions from the following: 1×10 = 10
- (a) How many faces are there in icosahedral capsids?
 - (b) Name one virus that adopts the pan-handle model for its genome replication.
 - (c) Name one virus that replicates its genome via RNA intermediate.
 - (d) Name one virus that contains multiple copies of genome.
 - (e) Name one virus which has enveloped capsid.
 - (f) What are capsomeres?
 - (g) Name one DNA virus which has reverse transcriptase.
 - (h) Name the causative agent of small pox.
 - (i) Name one virus whose capsid has helical symmetry.
 - (j) What is a prophage?
 - (k) Give example of a viral zoonosis.
 - (l) What major immunological change takes place in AIDS patients?
 - (m) Define co-morbidity.
 - (n) What is a plaque?
 - (o) What is OPV?
2. Answer any **ten** questions from the following: 2×10 = 20
- (a) Differentiate between Epidemic and Pandemic diseases with suitable examples.
 - (b) What are viroids? Give any two examples of viroids.
 - (c) What do you mean by herd immunity?
 - (d) How can we prevent the transmission of influenza virus?
 - (e) Write down the symptoms of polio.

- (f) What do you mean by vertical transmission?
- (g) What should be the properties of an ideal vaccine?
- (h) Write down the names of different proteins involved in the genome replication of viruses that contain circular double stranded DNA as their genome.
- (i) What do you mean by passive vaccination?
- (j) Name a plant virus and briefly mention its mode of multiplication.
- (k) What do you mean by incubation period?
- (l) “All HIV positives are not AIDS patients” – Justify the statement.
- (m) Give one example each of lytic and lysogenic phage.
- (n) Name an anti-HIV drug and mention its probable mode of action.
- (o) What do you mean by latent phase of viral infection?

3. Answer any *two* questions from the following: 5×2 = 10

- (a) Discuss the Baltimore’s classification of viruses.
- (b) Name the repressor proteins of lambda phage and discuss their functions briefly.
- (c) Draw the schematic diagram to illustrate the viral life cycle starting from attachment of the virus on the host cell surface. What is cytopathic effect? 4+1
- (d) Discuss the lytic cycle of T4 phage. What are prions? 3+2

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

—×—