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SEAT No. \_\_\_\_\_

Number of printed pages 2

## Sardar Patel University

M.Sc. Integrated Biotechnology, Fourth Semester Examination

Monday, 1<sup>st</sup> April, 2019

10:00 a.m. to 01:00 p.m.

PS04CIGB06: Virology

Note:

1. Figures to the right indicate marks.
2. Draw neat and labeled diagram, wherever necessary.

Q.1 Attempt the following:

[8]

- i. English country doctor, \_\_\_\_\_ was the first person to vaccinate human against smallpox by inoculating material obtained from lesion of cowpox.  
a) Iwanowski b) Chamberland c) Beijerinck d) Jenner
- ii. The chemical nature of viruses was established by \_\_\_\_\_ in 1935?  
a) Stanley b) Chamberland c) Beijerinck d) Jenner
- iii. The one step growth experiment was developed by \_\_\_\_\_ in 1939.  
a) Delbruck b) Ellis c) Both a & b d) None
- iv. How many vertices are there in an icosahedral capsid?  
a) 4 b) 8 c) 12 d) 16
- v. \_\_\_\_\_ is an example of temperate phage.  
a) T4 phage b) Lambda phage c) Both d) None
- vi. The process by which phage reproduction is initiated in lysogenized culture is called \_\_\_\_\_.  
a) Induction b) Infection c) Integration d) Repression
- vii. The deleted nonessential region of  $\lambda$  replacement vector is known as \_\_\_\_\_.  
a) Concatamer b) Insertion fragment c) Stuffer fragment d) None of these
- viii. What size of insert can be efficiently carried by a cosmid vector?  
a) 20kb b) 40kb c) 60kb d) 80kb

Q.2 Attempt any Seven:

[14]

- i. What are Naked viruses? Give an example.
- ii. Give two examples of viruses showing Binal Symmetry.
- iii. What is the full form of ICTV?
- iv. Define Negative strand.
- v. Define virulent phage and temperate phage.
- vi. What is peplomer?
- vii. What is lysogeny? Write advantages of lysogeny.
- viii. Give the importance of complementation process occurring in viruses.
- ix. What is insertional  $\lambda$  vector?

(1)

(P.T.O)

- Q.3 A Which scientists made important contributions to the development of virology? What were their contributions? [6]  
B Explain Baltimore System of virus classification. [6]  
**OR**  
B Discuss the ways by which viruses can be cultivated. [6]
- Q.4 A Explain the life cycle of bacteriophage T4 with the help of suitable diagram. [6]  
B Describe replication cycle of single stranded RNA phage MS2. [6]  
**OR**  
B Explain the replication of M13 virus. [6]
- Q.5 A How is a one-step growth experiment carried out? Define latent period, eclipse period and rise period. [6]  
B Describe the roles of the lambda repressor, Cro protein, integrase and excisionase in lysogeny and induction. [6]  
**OR**  
B How do the temperate phages Mu and P1 differ from lambda phage? [6]
- Q.6 A Write a short note on host induced modification in bacteriophage. [6]  
B Differentiate between Plasmid and Phagemid. [6]  
**OR**  
B Give an account on Cosmid vectors. [6]

\*\*\*\*\*X\*\*\*\*\*

(2)