SC

(All)

No. of Printed Pages: 02

Sardar Patel University
M. Sc. Integrated Biotechnology, Fourth Semester Examination
Saturday, 2nd May, 2015
02:30 p.m. – 05:30 p.m.
***PS04CIGB06*: Virology**

Note:

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

Q-1 Attempt the followings [08 X 01 =08]

1. English doctor _____was the first person to successfully treat patients against smallpox.
   (a) Jenner (b) Chamberland (c) Ivanowski (d) Beijerinck
2. _____ crystallized TMV virus to first establish its chemical nature.
   (a) Jenner (b) W. Stanley (c) Ivanowski (d) Ellerman
3. ΦX174 is a _____containing icosahedral phage.
   (a) ssDNA (b) dsDNA (c)ssRNA (d)dsRNA
4. MS2 belongs to which family of viruses?
   (a) Adenoviridae (b) Herpesviridae (c) Poxviridae (d) Leviviridae
5. The development of one step growth experiment in 1939 by - _____marks the beginning of modern bacteriophage research.
   (a) Delbruck (b) Ellis (c) Both (d) None
6. Which of the following virus has membranous envelope?
   (a) Φ6 (b) TMV (c) T4 (d) T7
7. T4 replisome consists of _____.
   (a)Helicase (b)Primase (c) Ligase (d)All of these
8. Which of the following is a linear, ssDNA virus?
   (a) T7 (b) Smallpox virus (c) M13 (d) Parvovirus

Q-2 Answer the following questions (**Any seven**). [07 X 02 = 14]

1. What are Peplomers?
2. Enlist and explain any two morphologies of viruses in short.
3. List 4 widely used approaches for purification of viruses.
4. Explain Burst size.
5. Define Eclipse period.
6. Explain function of hydroxymethylcytosine in life cycle of T4 phage.
7. Name a single stranded phage vector which is used for sequencing.
8. Define vectors and enlist their ideal characteristics.
9. Draw the genetic map of bacteriophage MS2?

Q-3	(A)	How are viruses similar to cellular organisms? How do they differ?	[06]
	(B)	Explain atleast any two methods to enumerate phages.	[06]
		OR	
	(B)	Explain Baltimore system of virus classification	[06]
Q-4	(A)	Write a note on M13 phage with emphasis on its mode of replication	[06]
	(B)	Explain the life cycle of T7.	[06]
		OR	
	(B)	Explain the reproduction of plus-strand RNA bacteriophage diagramatically.	[06]
Q5	(A)	Explain schematically the decision making process for establishing lysogeny or lytic pathway.	[06]
	(B)	Write a note on First generation vaccines.	[06]
		OR	[06]
	(B)	How is a one-step growth experiment carried out?	
Q6	(A)	Write a note Phenotypic mixing of virus.	[06]
	(B)	What do you understand by the term "restriction-modification"? Correlate it with the phenomenon of host-induced modification citing suitable examples.	[06]
		OR	
	(B)	Discuss the construction of Cosmids vectors and enumerate various advantages and drawbacks associated with the use of Cosmids.	[06]

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