

(36 & A-23)

SEAT No. _____
Sardar Patel University

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Sixth Semester Examination—2018

Class---TYBSc Biotechnology

3 Credit Course ----US06CBIT04 (Virology)

Date ---02/04/2018 (Monday)

Time 10.00am -1.00pm

Total marks 70

Q1. Multiple choice questions. Attempt all questions.

[10]

i. The chemical nature of enveloped viruses is

- (A) protein (B) glycolipid
(C) lipoprotein (D) nucleoprotein

ii The bacteriophage with a single stranded circular DNA, as genome is

- (A) T4 phage (B) λ phage
(C) MS2 (D) ϕ x 174

iii Integrase enzyme in HIV is encoded by

- (A) Gag genes (B) Env genes
(C) Pol genes (D) Tat genes

iv The cro protein has binding affinity on-----in left and right operators

- (A) 1st site (B) 2nd site
(C) 3rd site (D) Both A & C

v Total number of viruses released on lysis of one bacterial cell is called

- (A) Titer value (B) Burst size
(C) Packaging (D) None of the above

vi Which one of the following viruses has RNA as its genetic material?

- (A) Hepatitis B virus (B) Adenovirus
(C) Papilloma virus (D) Retrovirus

vii Which of the following hepatitis virus has DNA genome

- (A) Hepatitis A (B) Hepatitis B
(C) Hepatitis C (D) Hepatitis E

viii Kuru and scrapie diseases are caused by---

- (A) Viruses (B) Bacteria
(C) Prions (D) Fungi

ix Movement of viruses from one cell to another in a plant is via---

- (A) Plasmalemma (B) Desmosomes
(C) Plasmodesmata (D) Stomata

x Viroids are composed of

- (A) Infectious RNA (B) Infectious DNA
(C) Infectious protein (D) Infectious virus

(1)

(P.T.O.)

- Q2 Short questions. Attempt any TEN questions. [20]**
- Which features of viruses were considered for LHT system of virus classification.
 - Draw the chick embryo showing sites of inoculation used in pock assay.
 - Which is receptor destroying enzyme and how it works?
 - Define eclipse period, latent period, burst size and prophage.
 - Give the structure and role of cI protein.
 - Explain the role of cII and $cIII$ in regulation of λ -repressor protein.
 - Enlist the genes of HIV with their roles.
 - Draw the structure of Hepatitis B virus.
 - Write a note on ss RNA (+) genome.
 - Enlist the characteristic features of viruses
 - Explain the biotechnological approaches to control plant virus.
 - Discuss the types of genome in plant viruses.
- Q3a Explain the viral assay based on their ability to agglutinate Red blood cells. [07]**
Q3b Enlist the similarities and dissimilarities of viruses with living organism. [03]
- OR**
- Q3a Discuss in detail the symmetric nature of viruses. [07]**
Q3b Give Baltimore's classification of viruses [03]
- Q4a Describe in detail the immediate early transcription and its regulation in λ phage genome. [07]**
Q4b Explain how bacteriophages adsorb to their host cell surface? [03]
- OR**
- Q4a Discuss the integration and excision of λ -phage genome in *E. coli* genome. [07]**
Q4b Explain the role of repressor protein in maintaining lysogeny. [03]
- Q5a Explain the steps involved in HIV genome transcription. [07]**
Q5b Enlist all the early genes of adenovirus with their role. [03]
- OR**
- Q5a Describe the steps from entry of vaccinia virus to its host till its release. [06]**
Q5b What is the role of reverse transcriptase in Hepatitis virus? [04]
- Q6a Discuss the viral symptoms produced internally as well as externally in plants? [07]**
Q6b Explain how viruses are able to move within a plant? [03]
- OR**
- Q6a Explain various means of virus transmission in plants. [07]**
Q6b Enlist all the methods of controlling plant viral diseases. [03]