

SEAT No. _____

No. of Printed Pages : 2

[87]

Sardar Patel University
Semester examination-2020

B.Sc Vth Semester, Subject – Biotechnology
Course no. US05CBIT23 Date - 28-12-2020

R-DNA Technology

Time – 2hrs (2 pm to 4 pm)

Marks-70

NOTE- Figure in the right indicates marks .

All questions are compulsory. Make necessary diagram wherever needed.

Q.1. Multiple Choice Question (MCQ). Select correct answer from given MCQ. [10marks]

- 1.a. Select the correct type of restriction enzymes used in genetic engineering-
(A) Type I (B) Type II
(C) Type III (D) Type I & III
- 1.b. DNA ligase can join two DNA fragments through formation of -
(A) Phosphodiester bond (B) Hydrogen bond
(C) Glycosidic bond (D) Covalent bond
- 1.c. Which of the following enzymes are essential for rephosphorylation of DNA
(A) Alkaline phosphatase (B) Terminal transferase
(C) Polynucleotide kinase (D) All of the above
- 1.d. First artificial plasmid constructed in laboratory for gene cloning experiment are-
(A) YAC (B) BAC
(C) PBR 322 (D) PUC 8
- 1.e. COS sequence are present in
(A) Bacteria (B) Bacteriophage
(C) Yeast (D) Eukaryotes
- 1.f. Which of the following vector are also called minichromosomes-
(A) YAC (B) YIP
(C) YCP (D) YEP
- 1.g. Expression vector must have-
(A) Promoter (B) Ribosome binding site
(C) Terminator (D) All of the above
- 1.h. Which of the following vector are most commonly used for gene transfer in mammalian cell
(A) Retrovirus (B) SV 40
(C) Insertional vector (D) Replacement vector
- 1.i. Bioinformatics is also regarded as a part of
(A) Computational biotechnology (B) Computational biology
(C) Computer analysis (D) Computational knowledge
- 1.j. Submission to GENE BANK are made using
(A) Bankit and sequin (B) Bankit and Bankit
(C) Sequin and sequin (D) Entrez

[1]

P.T.O

Q2. Fill in the blanks/true false

(08marks)

- a. Restriction enzymes recognizes----- sequence as target
- b. Phagemid vector is based on -----
- c. Cointegrate vector is used for gene transfer in ----- cell
- d. EMBL----- sequence database
- e. DNA polymerase I is needed for reverse transcription. (True/False)
- f. Replacement vector is type of bacteriophage-based vector. (True/False)
- g. SV 40 is plasmid-based vector. (True/False)
- h. Accession codes is needed for biological database. (True/False)

Q.3. Short questions (2 marks each) attempt any ten

[2x10=20marks]

- [1] Enlist the application of restriction enzymes in genetic engineering.
- [2] Write brief notes on exonuclease.
- [3] What is methylase?
- [4] Give the properties of ideal cloning vector.
- [5] What is replacement vector.
- [6] Write brief notes on YCP.
- [7] What do you mean by MAC.
- [8] Write brief notes on application of expression vector.
- [9] What do you mean by SV40
- [10] Define bioinformatics.
- [11] Write notes on significance of bioinformatics
- [12] What is primary database.

Q.4. Attempt any four

(8x4=32)

1. What is rDNA? Explain the steps essential for construction of rDNA with diagram. [08]
2. Discuss the types properties and application of DNA polymerase in genetic engineering. [08]
3. Define Cosmid. How can you clone a gene X through cosmid vector? [08]
4. What is BAC vector? Discuss the strategy to clone DNA fragments through BAC vector. [08]
5. What YAC stand for? Explain the features of YAC with labelled diagram. [08]
6. How retrovirus based used for gene transfer in target cell. Explain? [08]
7. Discuss various types of nucleotide sequence database in Detail. [08]
8. Write a detail note on protein sequence database. [08]

~~_____X_____~~
[2]