Sc

No. of Printed Pages : 2

SEAT No._____

[45]

Sardar Patel University
Semester examination-2018
B.Sc Vth Semester, Subject – Bioinformatics
Course no. US05CBNF04, Date - 29.10.18, Monday
Genetic Engineering-I

Time – 3hrs - 10.00 AM TO 01 P.M **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 givenMCQ. (10marks)

1.a. ECORI is examples of -
(A)Restriction enzymes (B) Plasmid
(C) Vector (D) Bacteriophage

1.b. Enzyme used for joining DNA fragments together are called
(A)DNA ligase (B) DNA Polymerase
(C) Polynucleotide kinase (D) Alkaline phosphatase

1.c. Which of the following vector considered as work horse of a gene cloning laboratory
(A) YAC (B) BAC
(C) PBR 322 (D) PUC 8

1.d. Ti plasmid are present in
(A) Agrobacterium (B) E. Coli
(C) Bacillus (D) Pseudomonas

1.e. Which of the following vector can be used for gene transfer in mammalian cell
(A) YAC (B) Retrovirus
(C) PBR 322 (D) YCP

1.f. Recombinant clones can be screened through
(A) Split gene (B) Insertional inactivation
(C) Base pairing (D) Insertional activation

1.g. Which of the following bacterial cell is used in transformation
(A) Competent cell (B) Wild type cell
(C) Protoplast (D) Spheroplast

1.h. By agarose gel electrophoresis, the size of DNA fragment can be separated upto
(A) 0.5 to 60 kb (B) 50-200 kb
(C) 150-450 kb (D) 450-600kb

1.i. 2,3 dideoxynucleotides can terminate the synthesis of DNA trough
(A) Block the formation of phosphodiester bond with dNTPs
(B) Block the formation of Hydrogen bond between bases
(C) Block the formation of N glycosidic bond between sugar and base
(D) Block the formation of covalent bond

1.j. Which of the following techniques are used for invitroamplification of DNA
(A) PCR (B) Electrophoresis
(C) Footprinting (D) Chromatography

P.T.O

Q.2. Short questions (2 marks each) attempt any ten **(2x10=20marks)**

[1] What do you understand by recombinant DNA technology?
[2] Write brief notes on alkaline phosphatase.
[3] What is cos site?
[4] Write short notes on T DNA.
[5] Write notes on limitation of SV40 vector
[6] Enlist essential features of cloning vectors.
[7] What is transformation?
[8] Write short notes on application of genomic cDNA library.
[9] Define cDNA.
[10] Enlist various reagent and chemicals for agarose gel electrophoresis.
[11] What is RT-PCR?
[12] Write notes on principle of HPLC.

Q3.a Explain the features and properties of pUC 8 with suitable map. **[05]**
Q3.b. Why restriction enzymes is important in genetic engineering. **[05]**

OR

Q.3.a. Explain the features and properties of cosmid vector with suitable map. **[05]**
Q.3.b. Write short notes on properties and application of DNA polymerase. **[05]**

Q.4.a. How can you cloned gene through YAC vector? Explain. **[06]**
Q.4.b. Write short notes on application of Ti plasmid as vector. **[04]**

OR

Q.4.a. Explain various types of Ti plasmid based vector. **[06]**
Q.4.b. Write shot notes on any shuttle vector. **[04]**

Q.5.a. What is insertional inactivation? Explain with suitable examples. **[06]**
Q.5.b. Explain any method for construction of genomic DNA library. **[04]**

OR

Q.5.a. How will you construct cDNA library? Explain with suitable steps. **[06]**
Q.5.b. Enlist application of recombinant selection and screening. **[04]**

Q.6.a. Write notes on classical PCR in detail. **[05]**
Q.6.b. What is Maxam and Gilbert DNA sequencing? Explain. **[05]**

OR

Q.6.a. Explain the process of SDS-PAGE in brief. **[05]**
Q.6.b. Write short notes on Sanger method of DNA sequencing. **[05]**

----------X----------

—X—