

SEAT No. _____

No. of Printed Pages : 2

[75 & A-50]

Sardar Patel University

Semester examination-2017 (NCC)

B.Sc Vth Semester,

Subject – Biotechnology

Course no. US05CBIT02

Date - 10.04.2018

Molecular techniques

Time – 2:00 - 5:00 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 given MCQ. [10marks]

- 1.a. Which of the following chemical used for staining the DNA in agarose gel
(A) Ethidium bromide (B) Cesium bromide
(C) Silver chloride (D) Cesium chloride
- 1.b. Select the methods that can be used to engineered proteins-
(A) Hybridization (B) Site directed mutagenesis
(C) Real time PCR (D) DNA footprinting
- 1.c. Which of the following are not the components of polymerase chain reaction (PCR)
(A) DNA template (B) Taq DNA polymerase
(C) RNA polymerase (D) Primers and dNTPs
- 1.d. What does the technique of Southern blotting detect?
(A) DNA (B) RNA
(C) Proteins (D) Carbohydrates
- 1.e. Protein-protein interaction is can be studied through
(A) Northern blotting (B) Southern blotting
(C) Western blotting (D) South western blotting
- 1.f. Recombinant clones can be identified through
(A) Dot blot hybridization (B) Colony hybridization
(C) Insitu hybridization (D) All of the above
- 1.g. Which of the following is associated with DNA finger printing?
(A) Electrophoresis (B) RFLP
(C) Site specific mutagenesis (D) Shotgun cloning
- 1..h. A genomic library is
(A) The complete set of cloned fragments of DNA of an organism
(B) The complete set of individual chromosomal fragments
(C) The complete set of plasmid DNA
(D) The complete set of exons only
- 1..i. Chain termination methods of DNA sequencing utilize
(A) 2, 3 dideoxynucleotides (B) 3,4 dideoxynucleotides
(C) 4,5 dideoxynucleotides (D) 5,6 dideoxynucleotides
- 1.j. In DNA-gel retardation assay, which of the following complexes that are formed is analyzed?
(A) DNA-RNA complex (B) DNA-DNA complex
(C) RNA-protein complex (D) DNA-protein complex

P.T.O

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

[2x10=20marks]

- [1] What is electrophoresis?
- [2] Give brief comments on buffer used in agarose gel electrophoresis.
- [3] Write notes on Taq DNA Polymerase.
- [4] Enlist the steps required for FISH.
- [5] What is nucleic acid hybridization ?
- [6] Write short notes on application of southern blotting.
- [7] What should be properties of ideal molecular markers?
- [8] Write brief notes on Satellite DNA.
- [9] What is cDNA Library?
- [10] Give the requirements of invitro transcription.
- [11] Why DNA sequencing is important?
- [12] Enlist various systems for study of invitro translation.

- Q3.a. Explain the factors which affect the process of Agarose Gel Electrophoresis. [05]
Q3.b. Describe the basic methodology of PCR. [05]

OR

- Q.3.a. Briefly explains the components of Polymerase Chain Reaction. [05]
Q.3.b. Explain any two methods of site directed mutagenesis in brief. [05]

- Q.4.a. What is colony hybridization ? Explain with neat diagram. [05]
Q.4.b. Discuss the principle and classes of Autoradiography. [05]

OR

- Q.4.a. Explain Northern blotting in detail with neat diagram. [05]
Q.4.b. What is differential screening? Explain. [05]

- Q.5.a What AFLP stand for? Discuss the process of AFLP. [05]
Q.5.b Describe the process for construction of genomic DNA library. [05]

OR

- Q.5.a. Explain the process and application of DNA fingerprinting. [05]
Q.5.b. What is SNP? Explain [05]

- Q.6. a How will you sequence DNA fragments by Maxam and Gilbert method? Explain. [05]
Q.6.b. Write notes on application of invitro transcription. [05]

OR

- Q.6.a Explain Sanger methods of DNA sequencing with neat diagram. [05]
Q.6.b. What is DNA footprinting? Explain with any suitable methods. [05]

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