

(A-8) Seat No: _____

No. of Printed Pages : 3

Sardar Patel University

Semester examination-2016

B.Sc Vth Semester, (NC)

Subject – Biotechnology

Course no. US05CBIT02

Date - 30/05/16

Molecular techniques

Time – 3hrs - 10:30 am To 1:30 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. Which of the following reagents is used for separation of proteins in electric fields by polyacrylamide gel electrophoresis

- (A) Sodium Deoxycholate (B) Sodium Dodecyl Sulphate
(C) Dithiothreitol (D) Urea and formaldehyde

1.b. Which of the following chemical used for staining the DNA and RNA in agarose gel

- (A) EtBr (B) CSBr
(C) CsCl (D) All of the above

1.c. Which of the following are components of polymerase chain reaction (PCR)

- (A) DNA template (B) Taq DNA polymerase
(C) Primers and dNTPs (D) all of the above

1.d. Which of the following are examples of membrane hybridization technique

- (A) Southern blotting (B) Northern blotting
(C) Western blotting (D) All of the above

1.e. Northern blotting is used for identification of

- (A) RNA (B) Protein
(C) DNA (D) DNA and Protein

1.f. Select the correct method used for mapping of eukaryotes genome

- (A) RFLP (B) SNPs
(C) AFLP (D) All of the above

1.g. Minisatellites and Microsatellites are also called

- (A) VNTR & SSR (B) STS & EST
(C) VNTR & EST (D) STR & LTR

1..h. Which of the following enzymes is essential for preparation of cDNA

- (A) Reverse transcriptase (B) DNA polymerase I
(C) DNA polymerase III (D) All of the above

1..i. 2,3 dideoxynucleotides can terminate the synthesis of DNA through

- (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) All of the above

1.j. Which of the following method used for study of DNA protein interaction

- (A) Invitro transcription (B) Invitro translation
(C) DNA foot printing (D) DNA fingerprinting

(P.T.O)

1

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

[2x10=20marks]

- [1] Write short notes on buffer used in agarose gel electrophoresis .
- [2] Enlist the properties of Taq DNA Polymerase.
- [3] What is site directed mutagenesis?
- [4] Define autoradiography.
- [5] What do you mean by FISH?
- [6] What should be essential property of molecular markers?
- [7] Write short notes on satellite DNA .
- [8] Differentiate between genomic and cDNA
- [9] Write short notes on application of DNA fingerprinting.
- [10] What are various component of invitro-transcription ?
- [11] What do you mean by footprinting?
- [12] Write short notes on application of invitro translation

Q3.a. Describe the Principle, methodology and factors affecting Polyacrylamide Gel Electrophoresis.

[7]

Q3.b. Enlist various component of PCR.

[3]

OR

Q.3.a. Describe the Principle, methodology and factors affecting Agarose Gel Electrophoresis.

[7]

Q.3.b. Write notes on application of site directed mutagenesis.

[3]

Q.4.a. Explain Southern blotting in detail with neat diagram

[6]

Q.4.b. Write short notes on differential screening.

[4]

OR

Q.4.a Explain Western blotting in detail with neat diagram

[6]

Q.4.b. Write notes on non radioactive detection of hybridization.

[4]

Q.5.a . What RFLP stand for ? How RFLPs technique can used in mapping of genome.

[7]

Q.5.b Write a notes on application of genomic DNA library.

[3]

P.T.O

OR

Q.5.a. What AFLP stand for ? How AFLPs technique are used in mapping of genome. [6]

Q.5.b. Write a note on application of cDNA library [4]

Q.6. a Explain the mechanism of chain termination method of sequencing in detail. [6]

Q.6.b. Briefly explain the method of invitro transcription. [4]

OR

Q.6.a Explain the mechanism of chemical cleavage method of sequencing in detail. [6]

Q.6.b. Write short notes on the various system of invitro translation. [4]

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— X —
(3)