

SEAF No.

SARDAR PATEL UNIVERSITY
B.Sc. V SEMESTER EXAMINATION
THURSDAY, 9TH NOVEMBER 2017
10:00 A.M TO 1:00 P.M
BIOTECHNOLOGY: US05CBIT02
MOLECULAR TECHNIQUES

Total Marks: 70

[10]

- i) The technique for separation of charged molecules was developed by _____.
a) Tswett c) Sveberg
b) Tiselius d) Sanger
- ii) _____ PCR provides the information about the activity of tumor cells and viruses.
a) Inverse c) Nested
b) Reverse transcriptase d) Anchored
- iii) In site directed mutagenesis the nick is sealed with _____.
a) DNA polymerase c) Taq polymerase
b) DNA ligase d) Restriction endonuclease.
- iv) The application of Southern blotting in genetic engineering includes _____.
a) DNA fingerprinting c) RFLPs
b) Molecular mapping d) All of these.
- v) Northern blotting is commonly used for identification of _____.
a) DNA-DNA interaction c) DNA-RNA interaction
b) RNA-RNA interaction d) RNA protein interaction
- vi) The range of micro satellite sequences in eukaryotes is _____.
a) 1-5bps b) 7-13 bps c) 14-20 bps d) 21-27 bps.
- vii) RFLP stands for _____.
a) Random fragment length polymorphism
b) Restriction fragment length polymorphism
c) RNA fragment length polymorphism
d) None of the above.
- viii) Which of the following enzyme commonly used for in vitro transcription?
a) Prokaryotic RNA polymerase
b) Eukaryotic RNA polymerase
c) Bacteriophage RNA polymerase
d) None of the above.
- ix) DNA fingerprinting was developed by _____.
a) Francis Crick c) Alec Jeffrey
b) Khurana d) James Watts
- x) Genomic library is normally made by _____.
a) α phage vector c) β phage vector
b) λ phage vector d) γ phage vector.

Q.2 Answer the following questions in short. (Attempt any 10) [20]

- i) Mention the role of SDS in SDS PAGE.
- ii) How temperature affects the process of electrophoresis?
- iii) Which properties are essential for designing primers for PCR?
- iv) Give a note on Oligonucleotide mutagenesis.
- v) Write about Dot blot hybridization.
- vi) Define the terms: a) Hybridization b) Blotting.
- vii) Write different applications of DNA fingerprinting.
- viii) Define Satellite DNA.
- ix) Write a note on FISH and McFISH.
- x) Differentiate between cDNA library and genomic library.
- xi) What do you mean by DNA sequencing? Write automated method for DNA sequencing.
- xii) Give the basic principle of DNA footprinting.

- Q.3 a) Explain in detail Agarose Gel Electrophoresis. [05]**
b) Give a detail note on RT-PCR. [05]

OR

- Q.3 a) Give an account on SDS-PAGE. [05]**
b) Explain basic methodology and applications of PCR. [05]

- Q.4 a) Give an account on Southern Hybridization. [06]**
b) Explain Colony Hybridization. [04]

OR

- Q.4 a) Write a short note Autoradiography. [06]**
b) Explain: In situ hybridization. [04]

- Q.5 a) What is molecular marker? Explain RFLP in detail. [06]**
b) Write a note on SNPs. [04]

OR

- Q.5 a) Explain in detail AFLP. [06]**
b) Give an account on construction of cDNA library. [04]

- Q.6 a) Explain in detail Chain termination method for DNA sequencing. [10]**

OR

- Q.6 a) Describe the Maxam and Gilbert method for DNA sequencing. [10]**