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SEAT No. _____

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SARDAR PATEL UNIVERSITY
M.Sc. (III Semester) Biotechnology
22nd March, 2019 (Friday)
2.00 P.M to 5.00 P.M
Paper: PS03CBIT22-Genetic Engineering

Marks: 70

Q.1 Choose the most appropriate answer.

(08)

1. RNA isolation is comparatively difficult than DNA isolation because RNA
a) Contains Uracil b) is unstable c) is small in size d) none of these
2. Which of the following enzyme is commonly used for cutting DNA molecules?
a) T4 Ligase b) DNA Polymerase
c) Alkaline Phosphatase d) Restriction endonucleases
3. cDNAs are prepared from mRNAs by using
a) Taq DNA polymerase b) DNA ligase
c) reverse transcriptase d) all of these
4. In Sanger's DNA sequencing method, chain termination is achieved by
a) deoxyribo nucleotides b) Dideoxyribo nucleotides
c) ribonucleotides d) Adenine labelled with P32
5. Which of the following DNA fingerprinting methods can help in the study of co-dominance?
a) RFLP b) RAPD c) AFLP d) All of these
6. The most suitable method for introducing DNA into oocytes of animals is
a) Biolistics b) Microinjection
c) Electroporation d) Transformation
7. Single primer extension is a method commonly used for
a) Site directed mutagenesis b) northern hybridization
c) Southern hybridization d) real time PCR
8. The study of the entire environmental DNA from any source is known
a) Metabolic engineering b) Metagenomics
c) DNA isolation d) None of these

Q.2 Answer any seven of the following questions in brief.

(14)

1. Type II restriction enzymes
2. Advantages of bacteriophage based vectors
3. Applications of genomic DNA library.

(1)

(P.T.O.)

4. Salient features of pUC19 vector
5. Basic principle of pyrosequencing
6. Limitations of RAPD
7. Role of template DNA in PCR
8. Somatic cell gene therapy
9. Limitations of metabolic engineering

- Q.3 a) Explain principle and steps involved in the extraction of plasmid DNA (06)
b) Explain basic steps involved in cDNA library synthesis. What are its advantages? (06)

OR

- b) Explain the principle and advantages of blue-white screening (06)

- Q.4 a) Write note on I) EMBL vectors (06)
II) Role of Alkaline Phosphatase

- b) Explain the salient features of Ti plasmid based vectors (06)

OR

- b) What are expression vectors? Explain how they differ from cloning vectors? (06)

- Q.5 a) Give an detailed account of Pyrosequencing of nucleic acids. (06)
b) Describe any one method for site directed mutagenesis in detail. (06)

OR

- b) Explain the basic principle, advantages and applications of RFLP. (06)

- Q.6 a) Describe the principle involved in "BT" transgenic plants. (06)
b) Give an account of the process and applications of metagenomics (06)

OR

- b) Discuss in detail the regulations for release of genetically modified organisms in India. (06)

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