PARUL UNIVERSITY

PARUL INSTITUTE OF APPLIED SCIENCES

MID SEMESTER INTERNAL EXAMINATION, APRIL 2017

B. Sc. Semester IV , VI

Subject: Biotechnology, Microbiology

Paper Code: (11102254) **Title of the paper: Recombinant DNA technology**

Date: 28 / 03 /2018 **Time:1:30 p.m to 03:00 p.m**

Maximum Marks: 40

Instructions:

1. **All questions are compulsory and options are given in first and second question only.**
2. **Numbers to the right of question indicate the marks of respective question.**

Q. 1 Attempt any one question of the following. **(08)**

(i) Describe in detail Natural method for gene transfer method

(ii) Describe PCR technique along with its application

Q. 2 Attempt any three questions of the following. **(12)**

(i) Give detail about Nick translation

(ii) Describes non radio active labeling (Any two)

(iii) Write short note on Biolistics method

(iv) Compare & contrast random and site directed mutagenesis with examples.

(v) Explain with diagram Southern hybridization

Q. 3 Do as directed. Attempt all five questions. **(05)**

(i) What is Probe?

(ii) What is Mutagenesis?

(iii) Which is the Chemical gene transfer method?

(iv) Name the most common method for Nucleic acid Purification.

(v) In error prone PCR _____ precision is modulated by changing reaction buffer composition.

Q. 4 Write correct option in your answer sheet for following 15 multiple choice questions. **(15)**

MCQ 1 Which of the following technique is suitable for identifying mRNA molecule in sample?

(A) Western blotting (B) Southern blotting

(C) Northern blotting (D) None of above

MCQ 2 Oligonucleotide gene probes are defined as what?

(A) Enzymes that recognize and subsequently degrade foreign DNA

(B) A piece of DNA to which new nucleotides are added during DNA sequencing

(C) The pieces of DNA produced by restriction endonucleases

(D) A short stretch of DNA of a known sequence that will base-pair with a complementary sequence

MCQ 3 Reverse transcriptase PCR uses

(A) mRNA as a template to form cDNA

(B) DNA as a template to form DNA

(C) RNA as a template to form

(D) All of these

DNA

MCQ 4 Introduction of DNA into cell by exposing to high voltage electric pulse is

(A) Microinjection (B) electrofusion

(C) Electroporation (D) None of these

MCQ 5 Arrange the following in correct order

1. Southren blotting A. RNA-DNA hybride
2. Western blotting B. DNA-DNA hybride
3. Northen Blotting C. Southern blotting
4. DNA fingerprinting D. antigen- antibody reaction

(A) 1-A, 2-C, 3-D,4-B (B) 1-B,2-D,3-A , 4-C

(C) 1-B , 2-D , 3-C ,4-A (D) 1-B ,2-A , 3-D, 4-C

MCQ 6 Which of the following statement are true for Agarobacterium mediated gene transfer method

(A) Vir genes (B) T-DNA borders

(C) Ori C (D) All of these

MCQ 7 All of the following are thermostable Polymerase except

(A) Taq polymerase (B) DNA polymerase

(C) Vent polymerase (D) Pfu polymerase

MCQ 8 The PCR technique was developed by

(A) Kohler (B) Altman

(C) Milstein (D) Kary Mulis

MCQ 9 PCR can be used in which of the following fields?

(A) Agriculture (B) Forensics

(C) Diagnostic medicine (D) All of the above

MCQ 10 Half life of Taq DNA polymerase= _____mins at 94°C

(A) 120 (B) 45

(C) 40 (D) 5

MCQ 11 PCR cycle consist of

(A) three steps, denaturation, primer annealing and elongation (B) three steps, denaturation, initiation and elongation

(C) three steps, primer annealing, elongation and termination (D) three steps, initiation, elongation and termination

MCQ 12 DNA fragments in a restriction digest can be separated by electrophoresis in

(A) poly acrylamide (B) agarose gel

(C) both (a) and (b) (D) none of these

MCQ 13 In recombinant DNA technology, a selected gene is removed from an animal, plant, or microorganism, and is inserted into what?

(A) A primer (B) A cloning host

(C) A vector (D) A palindrome

MCQ 14 The transformation method that uses tungsten or gold particle coated with DNA accelerated at high velocity is called

(A) acceleration method (B) high velocity method

(C) DNA particle delivery method (D) particle gun delivery method

MCQ 15 Gene libraries made from genomic DNA are called genomic libraries and those made from complementary DNA are known as cDNA libraries

(A) True (B) False