Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

B.Sc. Winter 2017-18 Examination

Semester: 5 **Date: 29/12/2017**
Subject Code: 11102254 **Time: 02:00pm to 04:30pm**
Subject Name: Recombinant DNA Technology **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Brief note (Each of 04 marks) **(08)**
(a) Short note on cDNA library
(b) Give details of Polymerase Chain Reaction (PCR) with special emphasis on different reaction conditions and reaction components.

Q.1. B) Answer the following questions (Any two)
(a) Write short note on **(04)**
1. Restriction Enzymes
2. Vectors used in recombinant DNA technology.

(b) Discuss Agrobacterium mediated transformation of plant cells with diagram. **(04)**
(c) Give in detail steps to make competent cell using $CaCl_2$ method. **(04)**

Q.2. A) Answer the following questions.
(a) Write short note on **(04)**
1. Gene Gun
2. Southern Blotting

(b) Write a note on application of recombinant DNA technology in medicine and forensic science. **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Define the following **(03)**
1. Molecular Probe
2. Plasmid
3. Taq DNA Polymerase

(b) Write short note on "nick translation". **(03)**
(c) Write a short note on non radioactive DNA probes used in recombinant DNA technology. **(03)**

Q.3. A) Brief note (Each of 04 marks) **(08)**
(a) Discuss any one applications of recombinant DNA technology.
(b) Discuss in detail any one DNA sequencing method.

Q.3. B) Answer the following questions (Any two)
(a) Write in brief about the following **(04)**
1. Give difference between random mutagenesis and direct mutagenesis.
2. Write advantage of cloning cDNA in place of whole genomic DNA.

(b) Write short note on construction of genomic library. **(04)**
(c) How analysis of cloned DNA can be done in the lab. Explain. **(04)**

Q.4. A) Answer the following questions.
(a) Short note **(Each of 02 marks)** **(04)**
1. Write a note on "Western Blotting".
2. Write a note on Nucleic acid Purification methods and their yield analysis.

(b) Write short note on Blue White colony screening method for recombinant DNAs **(04)**

Q.4. B) Answer the following questions (Any two)
(a) Write in brief about following **(03)**
1. Cosmid
2. Electroporation
3. Mutagenesis

(b) Write a short note on RT-PCR. **(03)**
(c) Write a note on "Genomic Library". **(03)**