Seat No: _____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

M.Sc. Winter 2019-20 Examination

Semester: 3 **Date: 09/12/2019**
Subject Code: 11202203 **Time: 02:00 pm to 04:30 pm**
Subject Name: Genetic Technologies **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) Discuss the various types of vectors explain the significance of artificial chromosomes. **(08)**

Q.1. B) Answer the following questions (Any two)
(a) Short note: Phage vectors and their application **(04)**
(b) Short note: Types and properties of restriction enzymes **(04)**
(c) Give diagrammatic representation and applications of Northern blotting. **(04)**

Q.2. A) Answer the following questions.
(a) Name various techniques used to isolate DNA and RNA **(04)**
(b) Explain the steps to prepare cDNA libraries. **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Explain the working of alkaline phosphatase. **(03)**
(b) Using diagrams explain ligation by blunt ends and sticky ends. **(03)**
(c) Short note: DNA Pol I **(03)**

Q.3. A) Explain genome sequencing by shot gun and hierarchical methods. **(08)**

Q.3. B) Answer the following questions (Any two)
(a) Explain the role of the various components present in a PCR mix. **(04)**
(b) Short note: Biolistics **(04)**
(c) Short note: Nucleic acid probes. **(04)**

Q.4. A) Answer the following questions.
(a) How is DNA micro array performed? **(04)**
(b) Explain role of genetic engineering in medicine using 2 examples. **(04)**

Q.4. B) Answer the following questions (Any two)
(a) Define: **(03)**
1. Transfection
2. Exon- intron boundaries
3. Lipofection

(b) Short note: FISH **(03)**
(c) Short note: Role of genetic engineering in agriculture. **(03)**