

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**M.Sc., Winter 2017-18 Examination**

**Semester: 3**  
**Subject Code: 11202203**  
**Subject Name: Genetic Technologies**

**Date: 26/12/2017**  
**Time: 02:00 pm to 04:30 pm**  
**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) Essay type (Each of 04 marks) (08)**  
(a) Explain the DNA sequencing by sanger method  
(b) Write a brief note on physical gene transfer techniques.
- Q.1. B) Answer the following questions (Any two)**  
(a) Short note (04)  
1. Reverse transcriptase  
2. Alkaline phosphatase  
(b) Short note on Properties of a good vector (04)  
(c) Short note on Northern blotting (04)
- Q.2. A) Answer the following questions.**  
(a) Short note (04)  
1. Write a note on linkers as in DNA modified ends preparation  
2. Write the main steps in DNA cloning  
(b) Short note on cDNA library preparation (04)
- Q.2. B) Answer the following questions (Any two)**  
(a) Write full forms (03)  
1. SSC  
2. CMV  
3. MOPS  
(b) Write a note on Nucleic acid probes (03)  
(c) Draw a flow chart to isolate DNA from biological substance. (03)
- Q.3. A) Brief note (Each of 04 marks) (08)**  
(a) Explain the promoters and exon -intron boundaries in identification of genes.  
(b) Write note on YAC's and MAC's vectors.
- Q.3. B) Answer the following questions (Any two)**  
(a) Short note (04)  
1. Write a note on Adaptors  
2. Give the details of homopolymer technique  
(b) What is colony hybridization? Give their details in identification of a gene. (04)  
(c) Short note on Restriction mapping (04)
- Q.4. A) Answer the following questions.**  
(a) Short note (04)  
1. DNA Polymerase-I  
2. S1Nuclease  
(b) Make a short note on restriction endonucleases (04)
- Q.4. B) Answer the following questions (Any two)**  
(a) Do as directed (03)  
1. Example for two fluorescent dyes  
2. Define lipofection  
3. Difference between germ line and stem cell technology  
(b) Give the details of Microinjection technique (03)  
(c) Write note on DNA sequencing by shot gun method (03)