

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

**Semester: 1**  
**Subject Code: 11202101**  
**Subject Name: Genetics**

**Date: 20-12-2017**  
**Time: 02:00PM to 04:30PM**  
**Total Marks: 60**

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**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) What is splicing? Write their mechanism  
(b) Explain the Bt gene importance in plant biotechnology.
- Q.1. B) Answer the following questions (Any two) (04)**  
(a) Short note (Each of 02 marks) (04)  
1. Short note on RNAi  
2. Short note on RNA polymerase  
(b) Short note on Chromatin structure (04)  
(c) Give the details of Diversity of sigma factor (04)
- Q.2. A) Answer the following questions. (04)**  
(a) Short note (Each of 02 marks) (04)  
1. Write the steps involved in isolation of DNA.  
2. Short note on Dual promoter in arabinose operon.  
(b) Write a note on gene cloning (04)
- Q.2. B) Answer the following questions (Any two) (03)**  
(a) Short note (Each of 01 marks) (03)  
1. Linker  
2. Adaptor  
3. Promoter  
(b) Write a short note on HSP<sup>70</sup> (03)  
(c) Short note on amino acetyl tRNA formation in translation (03)
- Q.3. A) Essay type (Each of 04 marks) (08)**  
(a) Write brief note on Lac operon and its regulation of gene expression  
(b) Write the importance of physical gene transfer of Electroporation technique
- Q.3. B) Answer the following questions (Any two) (04)**  
(a) Short note (Each of 02 marks) (04)  
1. Attenuation  
2. Transcription bubble  
(b) Short note on homopolymer technique (04)  
(c) Explain how mRNA stabilized in the cytoplasm (04)
- Q.4. A) Answer the following questions. (04)**  
(a) Short note. (Each of 02 marks) (04)  
1. Write the steps involved in genome library preparation.  
2. Give the details of bacterial sporulation  
(b) What is PCR? Write the procedure involved in amplification of a gene (04)
- Q.4. B) Answer the following questions (Any two) (03)**  
(a) Define following (Each of 01 marks) (03)  
1. Euchromatin  
2. Solenoid loops  
3. Vector  
(b) Short note on YAC's (03)  
(c) Role of sigma factor in transcription (03)