

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV • EXAMINATION – SUMMER 2013

Subject Code: 140401

Date: 07-06-2013

Subject Name: Molecular Biology and Genetics

Time: 10:30am – 01:00pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define and explain the Mendel's law of segregation. **07**
(b) Describe about characteristics of sex linked inheritance. **07**
- Q.2** (a) Write a detail note on prokaryotic replication. **07**
(b) Define the term crossing over. Enlist types of crossing over and explain about meiotic crossing over. **07**
- OR**
- (b) Write a detail account on wobble hypothesis. **07**
- Q.3** (a) Why did Mendel use pea as the experimental material in his hybridizations? **10**
Give an account of his procedure and method of drawing the conclusions from the results of experiments.
(b) Differentiate between epistatics and dominance. **04**
- OR**
- Q.3** (a) "DNA replication is semi conservative"- justify with suitable mechanism. **07**
(b) Write a detail note on eukaryotic RNA polymerases engage in transcription. **07**
- Q.4** (a) Describe the phenomenon of linkage by giving suitable examples. Why is linkage an exception to Mendel's second law? **07**
(b) Discuss in detail about DNA replication of eukaryotic system. **07**
- OR**
- Q.4** (a) Give detail account on Avery, Macleod and MacCarty experiment that proved that DNA as genetic material. **07**
(b) With detail physiological significances, explain the term Muton, Recon, and cistron. **07**
- Q.5** (a) Discuss about Rho dependant transcription termination prokaryotic system. **07**
(b) Explain the process of transcription in eukaryotic system. **07**
- OR**
- Q.5** (a) Define the term translation. Discuss about post translational modification in eukaryotes. **07**
(b) How translation is done in prokaryotic system, explain suitable mechanism. **07**
