

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV • EXAMINATION – WINTER 2013****Subject Code: 140401****Date: 19-12-2013****Subject Name: Molecular Biology and Genetics****Time: 2.30 Pm - 05.00 pm****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) Explain the mechanism of crossing over with a neat diagram. **07**
(b) Write a short note on following a) gene b) allele c) recon d) cistron e) muton. **07**
- Q.2** (a) Explain the mechanism of replication in detail with a neat diagram. **07**
(b) What is sex linked inheritance? Explain using an example of Z-linked recessive genes in moths. **07**
- OR**
- (b) In Drosophila, a dominant gene (D) for a phenotype called dichaete alters the bristles and also makes the wings to remain extended from the body while the fly is at rest. It is homozygous lethal (DD). a) Diagram a cross between two dichaete flies and summarize the expected results. b) Diagram a cross between dichaete and wild type and summarize the expected results. **07**
- Q.3** (a) Explain different modes of replication with diagram of each. **07**
(b) Draw a neat diagram of clover leaf structure of tRNA and explain it. **07**
- OR**
- Q.3** (a) Explain the process of termination of transcription in prokaryotes. **07**
(b) Explain charging of tRNA and formation of initiation complex during translation process in prokaryotes. **07**
- Q.4** (a) Explain enzymology of replication in eukaryotes. **07**
(b) Explain the terms co-dominance with an example. **07**
- OR**
- Q.4** (a) Explain various disorders generated due to anomalies in human sex chromosomes. **07**
(b) Explain complete linkage with an example. **07**
- Q.5** (a) Write a short note on renaturation and denaturation of DNA. **07**
(b) Write a short note on properties of genetic code. **07**
- OR**
- Q.5** (a) Explain various disorders generated due to anomalies in human somatic chromosomes **07**
(b) Write a short note on Wobble hypothesis. **07**
