

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- IVth SEMESTER-EXAMINATION – MAY/JUNE- 2012****Subject code: 140401****Date: 23/05/2012****Subject Name: Molecular Biology and Genetics****Time: 10:30 am – 01:00 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) Write a short note on replication in prokaryotes with its enzymology. **10**
(b) What is denaturation of DNA? Explain it with neat diagram. **04**
- Q.2** (a) An inhibitor of pigment production in onion bulbs (I-) shows dominant epistasis over another locus, the genotype iiR- producing red bulbs and iirr producing yellow bulbs. If yellow onions are crossed to a pure white strain, what phenotypic ratio is expected in F1 and F2 generations? **07**
(b) Explain processing of m-RNA. **07**
- OR**
- (b) Explain Processing of t-RNA. **07**
- Q.3** (a) Explain different kinds of crossing over with a neat diagram. **07**
(b) What phenotypic ratio is expected in F2 generation if color blind man is married to a normal visioned woman? **04**
(c) Define epistasis, dominance and back cross. **03**
- Q.3** (a) Explain different types of linkage with a neat diagram. **07**
(b) What phenotypic ratio is expected in F2 generation if color blind woman is married to a normal visioned man? **04**
(c) Define linkage, codominance and monohybrid cross **03**
- Q.4** (a) Explain m-RNA transcription in eukaryotes. **10**
(b) Define: Promoter, Conservative replication. **04**
- OR**
- Q.4** (a) Explain Structure of t-RNA. **10**
(b) Define: Okazaki Fragments, Semi conservative replication. **04**
- Q.5** (a) Write a short note on genetic code and its properties. **07**
(b) Prove DNA as a genetic material in akaryotes. **07**
- OR**
- Q.5** (a) Explain mechanism of translation in prokaryotes. **10**
(b) Explain Wobble hypothesis. **04**
