

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV • EXAMINATION – SUMMER • 2014****Subject Code: 143504****Date: 25-06-2014****Subject Name: Fundamental of Biotechnology****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) Explain the components of DNA and write a detail note on DNA along with Chargaff's rule. **07**
(b) Write the function of messenger RNA and explain prokaryotic and eukaryotic mRNA along with diagram. **07**
- Q.2** (a) Write a note on r-RNA and also explain functional sites of ribosomes along with diagram. **07**
(b) Explain secondary and tertiary structure of t-RNA with the formation of aminoacyl t-RNA. **07**
- OR**
- (b) Write a short note on genetic code and wobble hypothesis in detail. **07**
- Q.3** (a) What do you mean by immune system? Which type of defense barriers are present in innate immunity and write a note on physical/anatomic barrier. **07**
(b) Explain Phagocytic and inflammatory barriers in detail with diagram. **07**
- OR**
- Q.3** (a) What do you mean by adaptive immunity? Write it's characteristics and write the components of acquired immunity. **07**
(b) Write a note on B and T lymphocytes. **07**
- Q.4** (a) What is antigenicity and immunogenicity? Write four properties of immunogen and explain all in detail. **07**
(b) Write a note on epitopes and haptens with diagram. **07**
- OR**
- Q.4** (a) Write and draw the basic structure of antibody along with definition. **07**
(b) Explain types of immunoglobulins with diagram. **07**
- Q.5** (a) Write the definition of DNA replication, explain modes of replication and explain unidirectional and bidirectional replication. **07**
(b) Write a note on blood group along with hemolytic disease of the newborn. **07**
- OR**
- Q.5** (a) Explain generalized model of DNA replication with diagram. **07**
(b) Explain all proteins which are involved in Dna replication in prokaryotes and eukaryotes with diagram. **07**
