Seat No.:	Enrolment No.
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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

BE - SEMESTER-IV(New) • EXAMINATION – WINTER 2016

Subject Code:2140401 Date:24/11/2016

**Subject Name: Molecular Biology and Genetics** 

Time:02:30 PM to 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.

MARKS **Q.1 Short Questions** 14 Define the term denaturation of DNA 1 In DNA double helix, the two DNA chains are held together by \_ What is the role of topoisomerase in DNA replication? Where translation takes place in a cell? Define the term replicone. Messelsen and Stahl model of replication was called\_\_\_\_\_ Enlist various nonsense codons. Define the term denaturation of DNA. What do you mean by Auxillary proteins? Mendel believed that the characteristics of pea plant can be determined by Phenotype refers to the \_\_\_\_ of an individual. 11 Genotype refers to the \_\_\_\_ of an individual. 12 Transcription initiated when RNA polymerase binds to \_\_\_\_\_ 13 What do you mean by leading strand and lagging strand? 14 (a) What are the significances of promoter in transcription? 03 0.2 **(b)** Write a note on one gene one protein hypothesis. 04 (c) Give a detail account on semiconservative mode of replication. 07 OR 07 (c) Describe about chromosomal disorders. Q.3 (a) Define cytoplasmic inheritance and its significances. 03 **(b)** Define the term with brief explanation : 04 Epistasis and peliotrophy (c) Elaborate on prokaryotic transcription. 07 (a) Define the term: replication fork and okazaki fragments 0.303 **(b)** Give detail account on Wobble hypothesis. 04 (c) Elaborate on eukaryotic translation. 07 (a) Define and write brief about intron and exon. **Q.4** 03 **(b)** Explain capping of mRNA. 04 (c) Define the term genetic code. Discuss about types of genetic code. 07 OR **Q.4** (a) Define cistone, recon and muton. 03 **(b)** Enlist and briefly mention post translational modification. 04 (c) Discuss the Griffith's experience that proves that DNA is genetic 07 material. (a) State Mendal's law of heredity. **Q.5** 03 **(b)** Write about RNA polymerase. 04 (c) Elaborate on structure of bacterial chromosome. 07

Q.5	(a)	What is the role of sigma subunit in transcription?	03
	<b>(b)</b>	What do you mean by monocistronic and polycistronic mRNA?	04
	(c)	Explain about enzymatic machinery of replication for prokaryotes and eukaryotes.	07