Enrollment No. _____

Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous)

Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION APRIL – 2017

M. Sc. Biotechnology

16PBTCC05 – MOLECULAR BIOLOGY AND GENETICS

Duration of Exam – 3 hrs ***Semester – II*** ***Max. Marks – 70***

***Part A** (5x2= 10 marks)*

Answer **ALL** questions

1. What is Nucleosome?
2. Define: Dominance & Recessive trait
3. What is the role of Primases in replication?
4. Explain Splicing.
5. What is Attenuation?

***Part B** (5X5 = 25 marks)*

Answer **ALL** questions

6a. Discuss the concept of fine structure of genes.

OR

6b. Define C-value. Explain C-value paradox giving example.

7a. What is factor hypothesis? Write a brief note on Allelic gene interaction.

OR

7b. What is cytoplasmic Inheritance? Explain the inheritance of the shell coiling in Snails

8a. Explain how the design of the Meselson and Stahl experiments addressed the question of DNA replication.

OR

8b. Explain Mechanism of action of Telomerase.

9a. Discuss events of mRNA processing

OR

9b. Give the salient features of genetic code and write briefly on Wobble Hypothesis.

10a. Describe in detail about Trp Operon and its regulation.

OR

10b. What is diauxic growth? Describe the molecular mechanism responsible for it.

Part C (5X7 = 35 marks)

Answer **ALL** questions

11a. Compare the genome organization of prokaryotes and eukaryotes. Provide the detailed structural organization of Eukaryotic genome.

OR

11b. Give a detail account on chromosome abnormalities.

12a. What is Linkage? Write an account on types of Linkages & Factors affecting Strength of Linkage.

OR

12b. Describe Dihybrid Experiment and explain the gene transmission in dihybrid inheritance. State briefly Mendels Law of Independent Assortment.

13a. Describe the enzymes involved in DNA replication.

OR

13b. Describe the mechanism of DNA repair which marks at the Post Replication of DNA protection

14a. Write an account on post-translational Modifications.

OR

14b. Discuss termination of transcription in prokaryotes and eukaryotes.

15a. Explain the concept of gene silencing.

OR

15b. How environmental factors regulate the gene expression, Explain?