Enrollment No. _____

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

Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION NOVEMBER 2018

B.Sc. Biochemistry

16UBCCC16 – MOLECULAR BIOLOGY –II GENE EXPRESSION AND REGULATION

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

Part A (10x1= 10 marks)

Answer **ALL** questions

1. With one example write what do you understand by Consensus sequence?
2. Define a palindromic sequence and write its one example.
3. What do you understand by polycistronic and monocistronic mRNA.
4. Write the function and average size of tRNA.
5. Give the basic difference between transcription & translation in eukaryotes.
6. What do you understand by the term 'protein sorting'?
7. Why regulation of gene expression is required in living system?
8. Give the characteristic feature of lysogenic cycle?
9. Define: Enhancer
10. Name the enzyme which cuts RNA into fragments for Gene silencing.

Part B (5x5= 25 marks)

Answer **ALL** questions

11a. Name the enzyme and write the chemical reaction involved in transcription.

OR

11b. Discuss different types of RNA polymerases in eukaryotes and their transcription factors and products.

12a. How production of mRNA is different in prokaryotes and eukaryotes?

OR

12b. Describe the components of ribosomes and their formation in prokaryotes.

13a. With diagram, explain various steps involved in initiation in eukaryotic translation.

OR

13b. Write a comparative account of prokaryotic and eukaryotic translation.

14a. Define operon and explain two types of operon with examples.

OR

14b. What do you understand by SOS response in *E. coli* and how it is regulated?

15a. Briefly explain different mechanisms to regulate gene in eukaryotic system.

OR

15b. Describe activators and enhancers.

***Part C** (5x7= 35 marks)*
Answer **ALL** questions

16a. Discuss different sigma factors and explain in detail about termination of transcription in *E.coli.*

OR

16b. Write about inhibitors of prokaryotic and eukaryotic transcription with their applications.

17a. Define mRNA spicing and illustrate steps for formation of mature mRNA from pre-mRNA.

OR

17b. Enlist products of eukaryotic RNA polymerases and explain Transcription of Genes by RNA Polymerase III.

18a. What do you understand by genetic code and write its unique characteristics.

OR

18b. List the three steps of translation and explain in detail elongation phase in prokaryotic translation with diagram.

19a. Write structure of lac operon and explain negative control of lac operon.

OR

19b. Write a note on Principles of gene regulation and discuss negative control of trp operon.

20a. Discuss role of hormones in gene expression in eukaryotic system.

OR

20b. Explain Galactose gene regulation in yeast.