(iii) U2AF

(iv) BBP

(v) E-site

(vi) MTL

(b) Diagrammatically explain the mechanism of Lac operon regulation in E. coli. (6)

(c) Describe the canonical pathway of mRNA splicing in eukaryotes. (6)

6. (a) Write short notes on following (any3): (5×3=15)

(i) RNA Interference

(ii) Yeast mating-type switching

(iii) Mechanisms of Epigenetic Regulation

(iv) Sporulation in Bacillus

(b) What is charging of tRNA? Explain. (3)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5515 **J**

Unique Paper Code : 2532013601

Name of the Paper : Principles of Molecular Biology-II

Name of the Course : **B.Sc. (H) Microbiology**

Semester : VI, NEP UGCF, Part III

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll. No. on the top immediately on receipt of this question paper.
2. Attempt **any five** questions.
3. All questions carry **equal** marks.

1. (a) What do you understand by the following terms? **(any 6):** (2.5x6=15)

(a) Enhancers

(b) Trans-splicing

(c) Inducer

(d) Guide RNA

(e) RBS

(f) snRNPs

(g) IncRNAs

(b) Draw the well labelled structure of tRNA (3)

2. (a) Differentiate between the following **(any 3):** (3x6=18)

(a) Group I and Group II introns

(b) Class I and Class II Aminoacyl tRNA synthetase

(c) Negative and Positive regulation

(d) Translation initiation in prokaryotes and eukaryotes

3. (a) With the help of a diagram, explain how rRNA is processed in bacteria. (6)

(b) Write the mode of action of the following inhibitors (any 3): (3x2=6)

(a) Chloramphenicol

(b) Tetracycline

(c) Puromycin

(d) Diptheria toxin

(c) Explain the mechanism of Capping in eukaryotic mRNA and write its significance. (5+1=6)

4. (a) With suitable example explain how coupling of transcription and translation is used during the regulation of gene expression in bacteria. (6)

(b) Discuss different mechanisms utilized for maintaining the fidelity of translation. (6)

(c) What do you understand by Alternate Splicing? Explain it with a suitable example. (6)

5. (a) Expand the following terms: (1x6=6)

(i) EF-Tu

(ii) PAP