V.P.M.'s B. N. BANDODKAR COLLEGE OF SCIENCE, THANE
IV SEMESTER END EXAMINATION- MARCH - 2017
S.Y.B.Sc.
USBT-403

Duration 2 hrs. 30mins. **Total Marks-75**

N. B. 1) All questions are compulsory.
2) Figures to right indicate full marks.
3) Draw neat and labeled diagrams wherever necessary.

Q.1 A. Answer the following (Any Two) **12**

1) Elaborate on initiation of transcription in prokaryotes.
2) Write a note on Rho dependent and Rho independent termination.
3) Elaborate on self-splicing introns.
4) Write a note on RNA editing.

Q.1 B. Attempt the following (Any Four) **8**

1) What is snRNA?
2) Name the enzyme that catalyses 3' end modification of eukaryotic mRNA.
3) What is consensus sequence? Give one example.
4) What are template and non-template strands?
5) Name the genes transcribed by RNA Pol III.
6) What is meant by precursor- mRNA?
7) State the importance of 5' end modification of eukaryotic mRNA.
8) Name the general transcription factors in eukaryotic transcription

Q.2 A. Answer the following (Any Two) **12**

1) Elaborate on 'Wobble hypothesis'.
2) With the help of neat labeled diagram, explain the process of 'translocation' during translation.
3) Explain: Genetic code is non-overlapping and degenerate.
4) Diagrammatically explain initiation of protein synthesis in prokaryotes.

Q.2 B. Attempt the following (Any Four) **8**

1) State two post translational modifications of proteins.
2) State true or false. Genetic code is universal. Justify your answer.
3) Give significance of post translational modifications of proteins.
4) Name the 3' binding sites for aminoacyl tRNA.

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5) Define: open reading frame.

6) What is a charged tRNA?

7) What is coupled transcription and translation?

8) State true or false. Justify your answer.: Genetic code is comma free.

Q.3 A. Answer the following (Any Two) **12**

1) Compare and Contrast between Native gel electrophoresis and SDS PAGE.

2) Define Electrophoresis. Elaborate on factors affecting electrophoresis.

3) Explain Electroendoosmosis. Add a note on detection of proteins in gel.

4) Explain the function of acrylamide, N, N, N, N, methylene bis acryamide, APS and TEMED in PAGE.

Q.3 B Answer the following (Any Four) **8**

1) Electrophoresis can be performed in distilled water. State true or false. Justify your answer.

2) State the significance of stacking gel.

3) A thin layer of water or n-butanol is added over resolving gel before adding stacking gel. Justify.

4) Give the order of mobility of Glycinate ions, Chlorine ions and SDS- Protein complex in separating gels.

5) A heterodimeric protein (molecular weight 10KD) is separated by native and SDS PAGE. How many bands do you expect on each gel?

6) Explain the term: isotachophoresis.

7) State the significance of power pack.

8) How are glycoproteins detected on protein gels?

Q.4 Answer the following. **15**

1) Draw a neat labeled diagram for transcription of rRNA genes in *E. coli.* **OR**

1) Elaborate on promoter proximal elements, activators and enhancers.

2) Draw a neat labeled diagram for translocation of proteins into endoplasmic reticulum in eukaryotes. **OR**

2) Elaborate on termination of translation.

3) Write a note on electrophoresis of RNA. **OR**

3) Write a note on agarose gel electrophoresis.

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