ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE -27
MID SEMESTER TEST – AUGUST 2016
M.Sc. MICROBIOLOGY – III SEMESTER
MB 9116: Molecular Biology and Recombinant DNA Technology

Time: 1 1/2 hours **Max. Marks: 35**

I. Answer any <u>five</u> of the following. **5x2=10**

1. Diagrammatically illustrate Rho independent termination process (only labelled diagram).
2. How is the right amino acid charged onto a tRNA?
3. How is promoter escape achieved?
4. List the channels in the RNA polymerase enzyme.
5. Give one application each for kinase and phosphate enzyme in genetic engineering.
6. Define enzyme unit for restriction endonucleases.
7. List four important features of pGEM3Z.

II. Answer any <u>two</u> of the following: **2x5=10**

8. How are the ends of the mRNA protected during transit from nucleus to cytoplasm? Explain one process in detail.
9. a. Explain the "Beads on a string model" 2.5
   b. Write the advantage of phagemid over M13mp8 vector. 2.5
10. Describe the mechanism of DNA ligation.

III. Answer any <u>one</u> of the following: **1x10=10**

11. Explain the process of eukaryotic replication adding a note on the regulation of this process.
12. List the steps involved in gene cloning. If genes are cloned in Lacz' region of Puc 8 and λZAPII, describe the strategy used in screening of recombinants.

IV. Answer the following: **1x5=5**

13. a. How is it possible for a gene with a mutation in the coding region to encode a polypeptide with the same amino acid sequence as the nonmutant gene? 1m
    b. Decode the following codon and write the sequence of the polypeptide. 1.5m
    5' AUGGUGUUUGCUUCCGAAAAACCCUGAUUUGAG....3'
    c. How do you bring out a site specific change of an amino acid from one to another in a protein? 2.5 m