MAL-003-001531 Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

October / November – 2016

Biochemistry - 503

(Molecular Biology)

Faculty Code : 003
Subject Code : 001531

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Give answers in **one** sentence only : **20×1=20**

(1) Give the other name for Sanger's method.

(2) Which enzyme is known as DNA Replicase ?

(3) Write one example of inhibitor of DNA replication.

(4) Name the molecule present at G-cap.

(5) Which enzyme synthesizes tRNA in E. coli ?

(6) Give the basic difference between replication and transcription process.

(7) What is an Operon ?

(8) Name the co-repressor for trp operon.

(9) What are N-linked oligosaccharides ?

(10) Give the function of photolyase in DNA repair.

(11) Write name of one common base analog.

(12) What are Mutational hot spots ?

(13) Define merozygote.

(14) State full form of Ds and Ac elements found in maize.

(15) State the name of method in which electric pulse is given for transformation.

(16) Write any two examples of restriction enzymes.

(17) Name the enzyme used in PCR.

(18) List the different types of vector DNA.

(19) Give the full form of PCR and its three main events.

(20) Which vector is generally used to prepare genomic library?

2 (a) Answer any **three** of the following questions : **2×3=6**

(1) Replication is a semi discontinuous process. Comment.

(2) Write the reactions catalysed by reverse transcriptase.

(3) Describe four arms of tRNA.

(4) Write the name and function of proteins used in SOS response?

(5) Give difference between Hfr and F strain.

(6) Give the difference between Prokaryotic and Eukaryotic replicons.

(b) Answer any three of the following questions : **3×3=9**

(1) What do you understand by maturation of Okazaki fragments ?

(2) With the help of an inhibitor how one can distinguish eukaryotic RNA polymerases ?

(3) State the names and functions of structural genes present in lac operon.

(4) Write a short note on Ames test.

(5) What do you understand by cosmids?

(6) Discuss the genes found in an operon.

(c) Answer any two of the following questions : **5×2=10**

(1) Describe the synthesis of DNA with well labelled diagram.

(2) Discuss in detail about formation of ribosome in eukaryotic cell.

(3) Describe attenuation control of trp operon.

(4) With well-labelled diagrams, discuss in detail repair involving excision of base pairs.

(5) With diagrams explain steps of molecular cloning.

3 (a) Answer any three of the following questions : **2×3=6**

(1) Give the role of ori C in bacteria.

(2) What is poly (A) tail? Give its importance.

(3) What do you understand by charged tRNA ?

(4) How spontaneous chemical changes cause mutation?

(5) Give the use of cos sites in bacteriophage λ based vector.

(6) Give the significance of Kozak sequence.

(b) Answer any three of the following questions : **3×3=9**

(1) Give the role of cyclins and Cdks in the cell cycle.

(2) What is Rho independent termination of transcription ?

(3) State role of different release factors in prokaryotes.

(4) Briefly describe repair by methyl directed mismatch repair.

(5) Describe IS element found in bacteria.

(6) Write the reactions of three base modifying agents.

(c) Answer any two of the following questions : **5×2=10**

(1) Compare and contrast eukaryotic and prokaryotic DNA polymerases.

(2) Explain in detail about RNA polymerase II.

(3) With diagram, explain elongation phase in prokaryotic translation.

(4) Describe the various types of base pair substitution mutation.

(5) Discuss various ways to classify plasmids.
