



PAR-003-001531

Seat No. _____

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

October / November - 2018

Biochemistry : Paper - 503

(Molecular Biology & Recombinant DNA Technology)

Faculty Code : 003

Subject Code : 001531

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- 1 Objective type questions : 20
- (1) Which nucleotide cannot be determined by DNA sequencing method ?
 - (2) Which enzyme helps in joining the okazaki fragments of lagging strands ?
 - (3) Name the isotopes that was used in the experiment of semi-conservative replication of DNA.
 - (4) What is Site of DNA replication in Prokaryotes ?
 - (5) Define Template strand.
 - (6) Which enzyme is responsible for copying an RNA sequence into an DNA sequence is....
 - (7) What is the role of sigma factor in Transcription?
 - (8) Which enzyme is present in Retroviruses?
 - (9) Which scientists discovered the genetic code?
 - (10) Name any two most common inhibitors for transcription.
 - (11) Which test is used to detect mutagenic activity of chemicals ?
 - (12) What is NER in E.Coli ?
 - (13) What are the molecules sometimes commonly referred to as 'Jumping genes' called ?
 - (14) List the stop codons.
 - (15) Which Nitrogen Base is involved in DNA methylation ?
 - (16) What is the site of Translation in Eukaryotes ?
 - (17) How many genes are regulated in Lac operon ?
 - (18) Which enzymes are called as "Molecular Scissors"?
 - (19) Define Plasmid.
 - (20) Which process uses virus as a vector ?

- 2 (a) Answer any **three** from the following : **3×2=6**
- (1) Write any two difference between leading and lagging strands of replication fork ?
 - (2) Define primosome and replisome.
 - (3) What is transcriptome and transcription unit.
 - (4) Define a triplet codon.
 - (5) What are insertion and deletion types of mutations ?
 - (6) Describe in brief "conjugation".
- (b) Answer any **three** from the following : **3×3=9**
- (1) Differentiate prokaryotic and eukaryotic replication.
 - (2) Describe the structure of RNA polymerase.
 - (3) Explain 'wobble hypothesis'.
 - (4) What is 'Ames test' ?
 - (5) Explain post translational processing of RNA.
 - (6) Explain Restriction Endonucleases.
- (c) Answer any **two** from the following : **2×5=10**
- (1) Explain Initiation of replication in prokaryotes.
 - (2) Explain in detail 'Reverse Transcriptase'.
 - (3) Explain: 'Lac operon'.
 - (4) Explain UV repair system in E.coli.
 - (5) Write applications of r-DNA technology.
- 3 (a) Answer any **three** from the following : **3×2=6**
- (1) Define replicators and okazaki fragments.
 - (2) Define poly-cistronic m-RNA and operon.
 - (3) What is σ_{32} ?
 - (4) Define frameshift mutation.
 - (5) Define competent cell and transducing phage.
 - (6) What is the difference between intron and cistron ?
- (b) Answer any **three** from the following : **3×3=9**
- (1) Explain in brief DNA Helicase and DNA topoisomerase.
 - (2) Explain Alternative Splicing.
 - (3) Explain charging of t-RNA.
 - (4) Write correlation of mutagenicity and carcinogenicity.
 - (5) Explain mechanism of transposition.
 - (6) Write a note on Base analogs.
- (c) Answer any **two** from the following : **2×5=10**
- (1) Describe in brief gene cloning in bacteria.
 - (2) Explain UV repair systems in E.coli.
 - (3) Write a short note on Trp operon.
 - (4) Explain mechanism of translation in prokaryotes.
 - (5) Write a short note on 'Mutation'.