JX-003-001531 Seat No. _____

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

October – 2019

Biochemistry : Paper - 503
(Molecular Biology & Recombinant DNA Technology)

Faculty Code : 003
Subject Code : 001531

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

1 Answer the following questions : **20**

1. Maxam -Gilbert method is also known as _____.
2. What is the driving force for DNA synthesis ?
3. What is proof reading function of DNA Pol I ?
4. Give the two unique characteristics of DNA replication.
5. What is Template DNA strand ?
6. Give the role of rho protein.
7. Which molecule helps in high level of transcription ?
8. Write any two inhibitors of transcription.
9. Why regulation of gene expression is done ?
10. Give the significance of Kozak sequence ?
11. What is N-linked oligosaccharide ?
12. Write the two functions of peptidyl transferase.
13. What is mutagen ?
14. Which mechanisms for thymine dimers repair lead to mutations ?
15. What is nonsense mutation ?
16. Frame shift mutation may occur as a result of _____ or _____.
17. What do you mean by DNA library ?
18. Define: Episome.
19. What is the use of selectable marker ?
20. Write the methods for screening of clones.

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

1) Give the applications of sequencing.

2) Write the names and roles of two enzymes for tRNA post transcriptional modifications.

3) Write about the structure of eukaryotic ribosomes.

4) Explain loss of function mutation.

5) Write the three basic categories of transposons.

6) How the RNA primers are removed from Okazaki fragments ?

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

1) Explain Sanger's method for DNA sequencing.

2) Discuss eukaryotic RNA polymerases.

3) Write the salient features of genetic code.

4) Give a detailed note on chemical mutagens.

5) Write the basic steps of cloning.

6) Draw well labelled diagram of Eukaryotic ribosomal DNA repeat unit.

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

1) What do you understand by Telomerases ?

2) With well labelled diagrams, explain about initiation and elongation of transcription in E. coli.

3) Discuss about negative control of lac operon.

4) How mutation can be repaired by different way ? Explain in detail.

5) Give short note on applications of genetic engineering.

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

1) Why is it necessary to unwind the DNA helix in the replication process ?

2) Briefly write about Promoters of E. coli genes.

3) What do you understand by charging of tRNA ?

4) What can happen in dimer formation ?

5) What is transposon ? Give its characters.

6) Write about the structure of eukaryotic ribosome.

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

1) Explain automated DNA sequencing method.
2) What do you understand by Spliceosomes ?
3) How tryptophan works as a corepressor for trp operon ?
4) What is SOS response ?
5) Explain steps involved in PCR.
6) Give a detailed note on methods of gene transfer.

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

1) Discuss in detail about eukaryotic and prokaryotic DNA polymerases.
2) Explain in detail post - transcriptional modification of m RNA in eukaryotes.
3) With well labelled diagram explain elongation phase in prokaryotic translation.
4) Explain in detail: Types of mutation and its effect on DNA.
5) Write short note on Restriction Endonulease.
