



HCN-003-001531 Seat No. _____

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

October – 2017

**BC-503 : Molecular Biology &
Recombinant DNA Tech.**

Faculty Code : 003

Subject Code : 001531

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

[Total Marks : 70

- 1 Write answers in **one** sentence : **20**
1. Give the full form and role of TBP in prokaryotic replication.
 2. Which enzyme is known as Kornberg's enzyme ?
 3. Give the full form and role of Cdks.
 4. How are the RNA primers of eukaryotic Okazaki fragments removed ?
 5. Write the significance of -35 Box in prokaryotic transcription.
 6. What do you understand by CstF ?
 7. Which genes are transcribed by RNA Polymerase II ?
 8. Why promoter is required during transcription ?
 9. Give the significance of Shine-Dalgarno sequence.
 10. Which molecule binds at A-site in ribosomes during translation ?
 11. Define operon.
 12. Name two inhibitors of translation.
 13. Which two genes are controlling the SOS system in E. coli ?
 14. Define neutral mutation.
 15. What is mutation ?
 16. Define photoreactivation.
 17. What is cDNA library ?
 18. Give the significance of MCS.
 19. What do you understand by polysome ?
 20. Define transformants.

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

1. Briefly explain role of topoisomerases in DNA replication.
2. Core enzyme of RNA polymerase.
3. Briefly explain transpeptidation reaction.
4. What is site directed mutagenesis ?
5. What are restriction endonucleases ?
6. What are phagemids ?

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

1. How are the RNA primers of eukaryotic Okazaki fragments removed ?
2. Eukaryotic Replication Initiation Complex
3. High level of transcription.
4. Charging of tRNA.
5. Frame shift mutation.
6. What is restriction modification system ?

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

1. Explain chemical cleavage method for sequencing of DNA.
2. Discuss in detail post - transcriptional modification of m RNA in eukaryotes.
3. With diagram, explain termination of prokaryotic translation.
4. Write a detailed note on induced mutation.
5. Describe plasmids and the types of plasmids.

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

1. Why it is not favorable to have DNA replication from 3' → 5' direction ?
2. Give the role of Cyclins.
3. Rho factor.
4. Explain role of ribosomes in protein synthesis.
5. What is F¹ conjugation ?
6. Base analogs.

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

1. What was proved by Meselson & Stahl's experiment ?
2. Write the chemical reaction of RNA polymerase.
3. Tryptophan works as co-repressor and lactose works as inducer. Explain.
4. Write salient features of Genetic code.
5. The Ames Test.
6. DNA transformation in bacteria.

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

1. Describe the DNA replication initiation at oriC in E.coli.
2. Explain in detail about RNA polymerase III.
3. Discuss negative control of lac operon.
4. Discuss in detail repair involving excision of base pairs with well-labeled diagrams.
5. Briefly describe the main steps of gene cloning.
