

Parvatibai Chowgule College of Arts and Science  
Autonomous

B.Sc. Semester End Examination, March 2022

Semester: V

Subject: Biochemistry

Title: Molecular Biology (Core)

Duration: 2 Hours

Max. Marks: 45

- Instructions: 1. All the questions are compulsory, an internal choice is available.  
2. Figures to the right indicate maximum marks to the question.  
3. Draw neatly labelled diagrams wherever necessary.

Q.1. Answer ANY THREE of the following: (09)

- Write a note on structural components of DNA.
- Distinguish between B-DNA and Z-DNA. (write any 3 points)
- With the help of a DNA sequence of your choice, explain in brief the mirror repeat and hairpin loop.
- State 3 features of prokaryotic chromosome.

Q.2. Answer ANY TWO of the following: (12)

- Describe in detail, the Griffith's experiment.
- Explain in detail, the termination phase of DNA replication in eukaryotes.
- Write an important feature on ancillary proteins (any 6) associated with DNA replication in eukaryotes.

Q.3. Answer ANY TWO of the following: (12)

- Explain in detail the AMES test.
- Draw a neatly labeled diagram, to explain homologous recombination.
- Diagrammatically represent the mutation caused upto 2<sup>nd</sup> generation due to depurination.

Q.4. Answer ANY ONE of the following: (12)

- i. Watson and Crick discovered a DNA model which was accepted in the field of Molecular Biology. Explain 6 different characteristics of this model.  
ii. Enlist 6 characteristics of extrachromosomal DNA that is found in prokaryotes.

OR

- i. Describe the termination stage of DNA replication in prokaryotes  
ii. Describe with the help of a neat labelled diagram, the DNA repair mechanism to correct the mismatch base pairs in DNA.

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