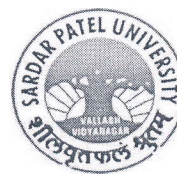




A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester -5) Internal Examination - 2025
US05MABOT02 : MOLECULAR BIOLOGY & BIOINFORMATICS

Date: 23/09/25

Time: 10-45AM TO 12-15PM

Total marks :30

Q-1 6-MCQ

(6)

1. Which of the following element is not found in DNA and RNA.
a) oxygen b) Nitrogen c) Sulphur d) Phosphorus
2. The number of DNA molecule in each chromosome is:
a) 1 b) upto ten c) more than 100 d) infinite
3. In which phase of the cell cycle does DNA replication occur?
a) G1 phase b) S phase c) M phase d) G2 phase
4. How does transcription differ in pro and eukaryotes?
a) prokaryotes have post transcriptional modification
b) Transcription occurs only in cytoplasm in eukaryotes.
c) RNA splicing in eukaryotes
d) Only eukaryotes need a template
5. Protein synthesis in bacteria takes place on which of the following organelles?
a) Endoplasmic Reticulum b) Golgi body
c) Ribosomes d) Mitochondria
6. Which of the following is an example of Homology and similarity tool?
a) BLAST b) RasMol c) EMBOSS d) PROSPECT



Q-2 Write contributions of scientists for the discovery of DNA.

(6)

OR

Q-2 Explain: Denaturation and Renaturation of DNA

(6)



Q-3 Write a note on models of DNA replication: rolling circle, Θ (theta) mode of replication (6)

OR

Q-3 Discuss: DNA replication is bidirectional, semi conservative and semi discontinuous (6)

Q-4 Write in detail about post transcriptional modifications of RNA in pro and eukaryotes. (6)

OR

Q-4 Describe: Post-translational modifications of proteins (6)

Q-5 Sketch and Label: PIR Homepage (6)

OR

Q- 5 Tools and Databases of NCBI (6)

No of printed pages: 01

Supervisor sign

Seat No.:



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BSC(Semester-5) Quiz - 2025

US05MABOT02: MOLECULAR BIOLOGY AND BIOINFORMATICS

Date: 23/9/25-TUESDAY

Time: Maximum 20 minutes

Total marks :15

Q-1 Fill in the blanks with appropriate answer given in the bracket.

[08]

- | | |
|------------------------------------|-------------------------------|
| (i) Sugar present in DNA: | Ribose/Deoxyribose |
| (ii) Bond present in RNA: | Ester /Phosphodiester |
| (iii) Replication in eukaryotes: | conservative/Semiconservative |
| (iv) Enzyme for DNA replication: | RNA polymerase/DNA polymerase |
| (v) RNA splicing: | Prokaryotes/Eukaryotes |
| (vi) Code for methionine: | AUG/UAG |
| (vii) Primary nucleotide database: | BLAST/GENBANK |
| (viii) Protein database: | Swissprot/DDBJ |



Q-2 Whether the following statement is true or false. Write your answer in the box

[07]

- | | |
|---|-----------|
| (i) Ribose is a hexose sugar. | [] |
| (ii) Uracil present in DNA. | [] |
| (iii) Replication is unidirectional. | [] |
| (iv) Replication is taking place in G1 phase of cell cycle. | [] |
| (v) Transcription in eukaryotes taking place in cytoplasm. | [] |
| (vi) RNA not involved in translation. | [] |
| (vii) BLAST is a search engine. | [] |