

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc., Summer 2022-23 Examination

Semester: 4
Subject Code: 11203280
Subject Name: Molecular Biology-II & Bioinformatics

Date: 22-03-2023
Time: 2:00pm to 4:30pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**
 (a) Describe Biological databases with examples.
 (b) Explain Protein Degradation Mechanism
- Q.1. B) Answer the following questions (Any two)**
 (a) Brief note (2x2) (Each of 02 marks) (04)
 1. Explain the protein synthesis mechanism in Prokaryotes
 2. Describe multiple sequence alignment with example.
 (b) Short note on General features of Genetic Code (04)
 (c) Short note on Signal Peptides (04)
- Q.2. A) Answer the following questions.**
 (a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) (04)
 1. SCOP and CATH database
 2. GenBank database
 (b) Explain the Molecular Chaperons (04)
- Q.2. B) Answer the following questions (Any two)**
 (a) Write full forms (Each of 01 marks) (03)
 1. Tim
 2. Tom
 3. SRP
 (b) Short note on Protein Databank (03)
 (c) Short note on Wobble Hypothesis (03)
- Q.3. A) Essay type (4x2) (Each of 04 marks) (08)**
 (a) Explain BLAST and its different variants.
 (b) Describe the Post translational Modifications
- Q.3. B) Answer the following questions (Any two)**
 (a) Short note (2x2) (Each of 02 marks) (04)
 1. Note on Swiss-Prot
 2. Note on Ubiquitination
 (b) Describe the fine Structure of Lac Operon (04)
 (c) Short note on Primer designing with example. (04)
- Q.4. A) Answer the following questions.**
 (a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) (04)
 1. How many structural genes present in Trp Operon?
 2. FASTA tool
 (b) Short note on Gene amplification (04)
- Q.4. B) Answer the following questions (Any two)**
 (a) Short note/ Multiple choice questions. (Each of 01 marks) (03)
 1. Phylogenetic analysis is based on:
 a. DNA b. RNA c. Protein d. All of these
 2. Phylip is a:
 a. Online tool b. Offline tool c. both d. None
 3. Speciation is related to:
 a. Gene duplication b. Gene mutation c. Species creation d. None
 (b) Short note on Human Genome project (03)
 (c) Short note on Protein sorting (03)

