Seat No:_____ Enrollment No:_____

# PARUL UNIVERSITY

## FACULTY OF APPLIED SCIENCE

## M.Sc., Summer 2022-23 Examination

**Semester: 4** **Date:(20/03/2023**

**Subject Code:11224251** **Time:** 2:00pm to 4:30pm

**Subject Name: Proteomics and Genomics** **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) How can 2D-PAGE be used for protein separation and identification from given sample.

(b) Explain how GST pull down assay can be used to study protein-protein interaction.

**Q.1. B) Answer the following questions (Any two)**

(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) **(04)**

1. Explain the chemical cleavage method of DNA sequencing.
2. Write a note on DNA microarray.

(b) Explain Pyrosequencing in detail. **(04)**

(b) Write a note on CoT curve analysis. **(04)**

**Q.2. A) Answer the following questions.**

(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) **(04)**

1. Discuss protein databases
2. Short note on BLAST

(b) Discuss in detail SNP **(04)**

**Q.2. B) Answer the following questions (Any two)**

(a) Short note/ Multiple choice questions. (Each of 01 marks) **(03)**

1. Name a freely accessible resource for protein sequence and information?
2. Enlist the steps of Next-generation sequencing.
3. Which chemical is used to cleave DNA at A+G.

(b) Explain Sanger sequencing method **(03)**

(c) Brief note on RFLP **(03)**

**Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks)** **(08)**

(a) Write about shotgun approach of DNA sequencing.

(b) Discuss Edman degradation method for protein sequencing

**Q.3. B) Answer the following questions (Any two)**

(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) **(04)**

1. Discuss PPIs
2. What is protein folding? define secondary and tertiary structures of protein

(b) Discuss molecular markers with special reference to micro satellites and SNP. **(04)**

(c) Write a note on C-value paradox. **(04)**

**Q.4. A) Answer the following questions.**

(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) **(04)**

1. What are the components of mass spectrometry.
2. Explain the steps of library preparation in NGS.

(b) What do you understand by gene annotation. **(04)**

**Q.4. B) Answer the following questions (Any two)**

(a) Short note/ Multiple choice questions. (Each of 01 marks) **(03)**

1. Which nucleotide can be cleaved by Hydrazine.
2. What is the use of sulfurylase enzyme in pyrosequencing?
3. Full form of NCBI

(b)Explain Yeast Two hybrid system in detail. **(03)**

(c) Write a note on mass analyzers of Mass spectroscopoy. **(03)**