Enrollment No: _____ Exam Seat No:_____

C. U. SHAH UNIVERSITY

Winter Examination-2022

Subject Name : Biochemical and Biophysical Techniques

Subject Code : 5SC03BBT1 **Branch: M.Sc. (Microbiology)**

Semester: 3 **Date: 24/11/2022** **Time: 11:00 To 02:00** **Marks: 70**

Instructions:

(1) Use of Programmable calculator and any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

SECTION – I

Q-1 **Attempt the Following questions** **(07)**

a. What is Numerical Aperture? **01**
b. Enlist stains used for Fluorescent Microscopy. **01**
c. Define electrophoretic mobility **01**
d. What is function of β mercaptoethanol in SDS PAGE? **01**
e. Expand TEMED. **01**
f. What is zwitter ion? **01**
g. Give principle of Differential centrifugation. **01**

Q-2 **Attempt all questions** **(14)**

a Write a note on confocal microscopy with diagram. **07**
b Discuss the principle, method and application of Density gradient centrifugation. **07**

OR

Q-2 **Attempt all questions** **(14)**

a Explain briefly the theory of electrophoresis. Explain the working principle of SDS PAGE. **14**

Q-3 **Attempt all questions** **(14)**

a Give short note on freeze fracture method. **07**
b Give a brief note on capillary gel electrophoresis. **07**

OR

Q-3 **Attempt all questions** **(14)**

a What is electron microscopy? How is contrast generated in specimens of electron microscopy? Compare major differences between SEM and TEM. **14**

SECTION – II

Q-4		**Attempt the Following questions**	**(07)**
	a.	Enlist gases which can be used as mobile phase in gas chromatography.	**01**
	b.	What is Pyrosequencing?	**01**
	c.	Define radioactivity.	**01**
	d.	Write principle of any one radioactivity counter.	**01**
	e.	What is antisense technology?	**01**
	f.	Give name enzymes used in Rnai technology.	**01**
	g.	Write any two application of Atomic adsorption spectroscopy.	**01**
Q-5		**Attempt all questions**	**(14)**
	a	Write a note on Mass Spectroscopy	**07**
	b	Write a note on detectors used in Gas chromatography.	
		OR	
Q-5		**Attempt all questions**	**(14)**
	a	Discuss the principle, instrumentation and application of HPLC.	**07**
	b	Draw the schematic diagram of UV-VIS spectrometer and explain instrumentation.	**07**
Q-6		**Attempt all questions**	**(14)**
	a	Write a detail note Illumina sequencing.	**07**
	b	Write a note on Maxam Gilbert sequencing	
		OR	
Q-6		**Attempt all Questions**	**(14)**
	a	Write a note on RAPD.	**07**
	b	Compare Genomic and cDNA library.	**07**