

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2023 – 2024 & thereafter)

M. Sc. DEGREE EXAMINATION - NOVEMBER 2024
BIOTECHNOLOGY
FIRST SEMESTER

COURSE : ELECTIVE
PAPER : BIOINSTRUMENTATION
SUBJECT CODE : 23BY/PE/BI15
TIME : 3 HOURS

MAX. MARKS: 100

Q. No.	SECTION A	CO	KL
	Answer ALL Questions (10 x 1 = 10)		
1.	Define surface plasmon resonance.	1	1
2.	Name the stages in the PCR.	1	1
3.	What is microarray?	1	1
4.	List the parts of microscope.	1	1
5.	Recall the primary functions of a confocal microscope.	1	1
6.	List the properties of alpha radiation.	1	1
7.	Differential centrifugation is based upon the differences in the _____ rate of biological particles of different size and density	1	1
8.	What is a native PAGE?	1	1
9.	State the principle of gel filtration chromatography.	1	1
10.	List two radioisotopes used in medicine.	1	1
Q. No.	SECTION – B	CO	KL
	Answer ALL Questions (5 x 2 = 10)		
11.	Summarize the basic components of mass spectrometers.	2	2
12.	State the principle of GM counter and mention its applications.	2	2
13.	Interpret sedimentation.	2	2
14.	Comment on two-dimensional PAGE.	2	2
15.	Expand FACS and give its application.	2	2
Q. No.	SECTION C	CO	KL
	Answer ALL Questions (4 x 10 = 40)		
16.	Outline the working of UV- Spectrophotometer. (or) Organize the types of biosensors and add a note on applications.	3	3

17.	Present on overview of the common DNA sequencing methods. (or) Highlight the safety aspects in handling radioactive isotope.	3	3
18.	Examine the principle of Ion-exchange chromatography with illustration. (or) Categorize the rotors used in centrifugation.	4	4
19.	Describe the process of lyophilization. (or) Examine the principles of protein electrophoresis.	4	4
Q. No.	SECTION – D	CO	KL
	Answer ALL Questions (2 x 20 = 40)		
20.	Explain the separation of compounds by gas chromatography. (or) Construct a flow chart to analyse a sample using NMR and discuss its application.	4	5
21.	Compile the process of microchip electrophoresis. (or) Elaborate on the biological applications of radioisotope.	5	6
