

Enrollment No. _____


**NAVVRACHANA
UNIVERSITY**
a UGC recognized University

School: School of Science
Program/s: M.Sc Life Sciences
Year: Final **Semester:** III
Examination: End Semester Examination
Examination year: December - 2022

Course Code: LS217 **Course Name:** Analytical Instrumentation and Data Analysis

Date: 13/12/2022
Time: 11:30 am to 1:30pm

Total Marks: 40
Total Pages: 1

Instructions:

- Write each answer on a new page
- Draw neat and well-labelled diagrams wherever required

Q. No.	Details	Marks	COs*	BTL*
Q1	Answer the following questions in short : (Any Five) <ol style="list-style-type: none"> 1. State the working principle of a spectrophotometer 2. Mention any three applications of ELISA 3. When and why would you use an electron microscope? 4. What are the advantages of using optical microscopy? 5. When would you use column chromatography? Give examples 6. Describe the basic principle of Soxhlet apparatus. 	(15 M)	CO1 CO2 CO3	BTL1,2 .3
Q2	Answer the following in detail : (Any Four) <ol style="list-style-type: none"> 1. Describe in detail the process of gel electrophoresis along with its applications 2. What are the major types of chromatography techniques and its applications? 3. State the working principle of Autoclave and centrifuge. What are the experiments in life sciences that would deploy these machines for use in their respective protocols. List them. 4. What are the major types of ELISA and what will be the working principle. 5. Discuss the basic working principle of a laminar hood. When and why would you use a laminar hood? 	(20 M)	CO1 CO2 CO3 CO4	BTL1,2 .3,4
Q3	Answer any one of the following : Design a tissue culture laboratory keeping in mind the best practices and safety. Draw a schematic to depict the lab arrangements along with the list of instruments. Also what would you do to ensure contamination free environment in the culture room. OR Imagine yourself to be in charge of the molecular biology lab and you have received COVID samples for testing. What would be the process to be adopted for this sample and what kind of apparatus would you be utilizing for the same. Give details.	(5M)	CO4 CO5 CO6	BTL4,5 .6
