Enrollment No._____

NAVRACHANA UNIVERSITY
a UGC recognized University

School: School of Science
Program/s: M.Sc Life Sciences
Year: 2nd **Semester:** Third
Examination: End Semester Examination
Examination year: December - 2021

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

Date: 08/12/2021 **Total Marks:** 4
Time: 8:30 am to 10:30 am **Total Pages:02**

Instructions:

- *Write each answer on a new page.*
- *Use of a calculator is permitted.*
- *Draw all relevant waveforms in answer sheet only.*
- ** COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping*

Q. No.	Details	Marks	COs*	BTL#
Q.1	1.Prokaryotic cells can only be cultured on solid media? a. True b. false 2. Which of the following microscopy techniques relies on the specimen interfering with the wavelength of light to produce a high contrast image without the need for dyes or any damage to the sample? a. Confocal microscopy b. Phase contrast microscopy c. Electron microscopy d. Fluorescence microscopy 3. What is used in electron microscope? a. Electron beams c. light waves b. Magnetic field d. a&b 4. ELISA (enzyme-linked immunosorbent assay) allows for rapid screening and quantification of the presence of _____ in a sample. a. Amino acid b. DNA c. Antigen d. Protein 5. The bands obtained by gel electrophoresis during DNA separation are stained with a. methyl blue b. potassium chlorate c. ethidium bromide d. chloral hydrate 6. What is Cas9 and what does it do?	6	CO1,02	BT1, BT2

	a. an RNA molecule that binds to target DNA via complementary base pairing b. a DNA sequence that binds the Cas9 protein c. a viral protein that disrupts bacterial membranes d. a protein enzyme that cuts both strands of DNA at sites specified by an RNA guide			
Q.2	Answer the following in brief: **(Any Four)** 1. What are the salient features of the Human genome Project? 2. What is sandwich ELISA method? 3. Enlist the applications of FISH. 4. What are the applications of DNA fingerprinting technique in research and forensic science? 5. Describe the basic principle of confocal microscopy technique.	**10**	CO1, CO2	BT1, BT3,
Q 3	Answer the following questions in detail: **(Any Four)** 1. Discuss the use of CRISPER technology with relevant example. 2. Explain at length DNA sequencing technology and its advantages. 3. PCR has become a common technique in labs world over owing to the COVID pandemic. How do you think this has helped in management of COVID pandemic? State your views on advancement of technology and its impact in public health management. 4. Write a detailed note on different kinds of microscopy techniques and its application in basic medical research. 5. What is the basic working principle of Spectroscopy technique? Discuss its importance reference to biochemical screening of various components.	**24**	CO1.3	BT1,2,3

**********End of Question Paper**********