



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – ADVANCED ZOOLOGY AND BIOTECHNOLOGY

FIFTH SEMESTER – NOVEMBER 2023

UAZ 5603 – BIO. INSTRUMENTATION SCIENCE

Date: 16-11-2023

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

SECTION A - K1 (CO1)

Answer ALL the Questions

(10 x 1 = 10)

1. Definitions

- a) Thawing
- b) Bradycardia
- c) Sleep apnea
- d) Monochromator
- e) Nitrocellulose membrane

2. Fill in the blanks

- a) The haematological test which is considered as a non-specific diagnostic tool is called as
- b) RBCs are biconcave cells without a nucleus in
- c) The lens is commonly used in electron microscopes.
- d) In colorimeter the light absorption is directly proportional to the concentration of
- e)is a method used to determine the arrangement of atoms within a crystal.

SECTION A - K2 (CO1)

Answer ALL the Questions
10)

(10 x 1 =

3. True or False

- a) Polycythemia vera is a blood disorder.
- b) The change in membrane potential from a positive to a negative value is referred to as depolarization.
- c) The fluorescence microscope has higher resolution compared to electron microscope.
- d) Fluorescence-activated cell sorting technology separates cells based on cell nuclease.
- e) BSA is a commonly used blocking agent in western blotting technique.

4. Match the following

- a) Acute inflammation - Transmitted electron
- b) CT scanner - ESR test
- c) Electric impulse - Blotting techniques
- d) Capillary action - Godfrey Hounsfield
- e) TEM - Pacemakers

SECTION B - K3 (CO2)

Answer any TWO of the following

2 x 10 = 20)

- 5. Explain the role of pacemaker in managing various cardiac rhythm disorders.
- 6. Illustrate the clinical manifestations of haemoglobin abnormality.
- 7. Write a note on polymerase chain reaction.

8.	Analyse the principle and instrumentation of mass spectrometry.
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SECTION C – K4 (CO3)

Answer any TWO of the following (2 x 10 = 20)

9.	Explain the steps involved in the cleaning and sterilization of laboratory glassware.
10.	Compare and contrast ESR test with acute inflammatory response.
11.	Classify and explain the principle and applications of chromatography.
12.	Examine the sequential steps involved in the southern blotting technique.

SECTION D – K5 (CO4)

Answer any ONE of the following (1 x 20 = 20)

13.	Elaborate the Nuclear magnetic resonance spectroscopy and its applications.
14.	Summarize the details on the following: a) TEM b) SEM

SECTION E – K6 (CO5)

Answer any ONE of the following (1 x 20 = 20)

15.	Report the chemical mechanism of cell lysis and DNA extraction from human blood.
16.	Evaluate and explain the good laboratory practices.

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