22MBP104

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(First Semester)

Branch – **APPLIED MICROBIOLOGY**

BIORESEARCH INSTRUMENTATION & AI

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 What is the H+ concentration in pure water?
(i)$1*10^{-7}$ m (ii)$1*10^{7}$ m
(iii)$1*10^{-4}$m (iv)$1*10^{14}$m

2 The tracking dye used in SDS-PAGE will be -------
(i)Anionic (ii)Cationic
(iii)Non ionic (iv)Amphipathic

3 What is ethidium bromide?
(i)Buffer (ii)chelating agent
(iii)DNA Solution (iv)Enzyme

4 CARD-FISH uses --------- molecule with fluorescent labelling for identification.
(i)Pyrimidine (ii)Tyramide
(iii)purine (iv)Tyrosine

5 Rocket immunodiffusion is also known as -------
(i)Gel diffusion (ii)Electroimmunodiffusion
(iii)Double diffusion (iv)None of the above

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 (a) Explain about the principle and function of atomic force microscopy.
(OR)
(b) Explain about Radioactive isotopes.

7 (a) Write a note on NMR spectroscopy.
(OR)
(b) Explain about Beer Lamberts law for absorption spectroscopy.

8 (a) Explain the working principle of Gas chromatography.
(OR)
(b) What are the principles and uses of thin layer paper chromatography?

9 (a) Explain the working principles of biosensors.
(OR)
(b) Explain RFLP and their applications in DNA fingerprinting.

10 (a) Illustrate the applications of ELISA.
(OR)
(b) What are the common uses and amplification of AI? Explain in brief.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Write in detail about the principle and application of SEM.

(OR)

b Write in detail about bright field and dark field microscope.

12 a Describe the working principle and applications of Spectrophotometer.

(OR)

b Explain the various types of centrifuges with their working principles.

13 a Explain HPLC.Write the principle and instrumentation with neat diagram.

(OR)

b Explain in detail about laminar air flow.

14 a Write about the agarose gel electrophoresis and its applications.

(OR)

b Explain about SDS PAGE with neat diagram.

15 a Discuss in detail about CO2 gas detection in BACTEC systems.

(OR)

b Explain about the molecular diagnosis of MDR-TB and MRSA.

Z-Z-Z END