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SUBJECT CODE NO:- 6108
FACULTY OF SCIENCE AND TECHNOLOGY
M.Sc. (Sem-IV)
Examination March/April-2022 (To Be Held In June/July-2022)
Zoology
Methods in Biology-512

[Time: 3:45 Hours]

[Max.Marks:80]

N.B Please check whether you have got the right question paper.

1. The question paper is divided into two parts.
2. Part 'A' is compulsory.
3. Attempt any five questions from Part 'B'.
4. Draw a neat labeled diagram whenever necessary.

Part A

Q.1 Multiple choice questions. (Each question carries 2 marks)

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1. Which of the following is used to visualize live cells?
 - a) SEM
 - b) Phase contrast microscope
 - c) TEM
 - d) All of the above
2. Image formation in electron microscope is based on _____.
 - a) column length
 - b) electron number
 - c) differential scattering
 - d) specimen size
3. ELISA is
 - a) using a radiolabeled second antibody
 - b) usage of RBCs
 - c) using complement-mediated cell lysis
 - d) addition of substrate that is converted into a colored end product
4. Which of the following radioisotope is commonly used in biology?
 - a) Carbon-13
 - b) Hydrogen-2
 - c) Carbon-14
 - d) Chlorine-35
5. Which enzyme is used to join together two different types of DNA molecules?
 - a) Lyase
 - b) Ligase
 - c) Protease
 - d) Endonuclease
6. Which of the following is a distinct advantage of the solid phase isolation technique?
 - a) Less expensive
 - b) more rapid and effective
 - c) doesn't require columns or beads
 - d) doesn't require cell lysis

7. Cleavage of the peptide chain is done by
 - a) tyrosine
 - b) tryptophan
 - c) trypsin
 - d) arginine
8. Molecular markers include
 - a) RFLP
 - b) RAPD
 - c) AFLP
 - d) All of these
9. A patch-clamp device is used to
 - a) measure the strength of an electrochemical gradient
 - b) study the properties of individual neurotransmitters
 - c) infuse different kinds of ions into an axon
 - d) study the properties of individual membrane channels
10. What does "MRI" stand for?
 - a) Magneto-Ray Iodometry
 - b) Medical Radiometry Instrument
 - c) Magnetic Resonance Imaging
 - d) Maximal Radiology Imaging

Part B

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| Q.2 | Explain any three types of the light microscope. | 12 |
| Q.3 | Explain the principle of western blotting and describe the steps involved in it? | 12 |
| Q.4 | Describe the procedure of isolation and purification of DNA. | 12 |
| Q.5 | Describe various molecular markers and mention its applications. | 12 |
| Q.6 | Explain patch-clamp recording method and mention its application. | 12 |
| Q.7 | Describe NMR and ESR spectroscopy. | 12 |
| Q.8 | Write short notes (any two) | 12 |
| | <ol style="list-style-type: none"> a. Scanning electron microscope b. RIA c. Gene knock out in eukaryotes d. Pharmacological testing | |