

Reg. No. : .....

Name : .....

**First Semester M.Sc. Degree Examination, August 2021**

**Zoology**

**ZO 213 : BIOPHYSICS, INSTRUMENTATION AND COMPUTER SCIENCE**

**(2019 Admission Onwards)**

Time : 3 Hours

Max. Marks : 75

**SECTION – A**

Write briefly on **any ten** of the following. Each question carries **2** marks.

1. 1<sup>st</sup> law of thermodynamics
2. Photosensitizer
3. 1<sup>st</sup> order reaction
4. Oxygen evolving complex
5. Visible region
6. Half life ( $t_{1/2}$ )
7. Quantum dot
8. Radio isotope
9. Resolving power
10. RCF

P.T.O.



11. Cation exchanger
12. Gel matrix
13. Absorbance
14. DBMS
15.  $C^{++}$

**(10 × 2 = 20 Marks)**

#### SECTION – B

Write short notes on **any six** of the following. Each question carries **4** marks.

16. Explain the mechanism of ATP synthesis in plants.
17. Discuss how light energy is being transferred using Jablonski diagram
18. List out the properties of  $\alpha$  particle.
19. Comment on the applications of iodine isotopes in biology.
20. Write a brief note on Nanomedicines.
21. Discuss the principle and applications of phase contrast microscopy.
22. Briefly explain density gradient centrifugation and its applications.
23. Comment on Gas chromatography techniques.
24. Explain the significance of Positron Emission Tomography.
25. Comment on system software and application software.

**(6 × 4 = 24 Marks)**



### SECTION – C

Write short essays on **any three** of the following. The question carries **7** marks.

26. Write an essay on nuclear medicines with suitable examples.
27. Describe the principle and applications of Immuno electrophoresis.
28. Write principle and applications of NMR spectroscopy in biology.
29. Discuss the importance of X-ray diffraction techniques in protein structure analysis.
30. Comment on different operating systems of computer application.

**(3 × 7 = 21 Marks)**

### SECTION – D

Write an essay on **any one** of the following. The question carries **10** marks.

31. Explain the principle and applications of Ion-exchange chromatogphy in protein purification?
32. Give an account on the principle and applications of fluorescent microscopy in biology.

**(1 × 10 = 10 Marks)**

---

