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**GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)**

Ph.D. (First Semester- Winter) Examinations, June-2025

23WPPEZO1011 - Advance Animal Sciences

(Zoology)



Time: 3 hrs

Maximum: 70 Marks

The figures in the right hand margin indicate marks.

Answer ANY FIVE Questions.

(14 x 5 = 70 Marks) Marks

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| 1.a. Describe the different types of epigenetic modifications and their roles in regulating gene expression. | 8 |
| b. Discuss the role of secondary messengers in signal transduction? | 6 |
| 2. FACS can isolate specific cell populations from heterogeneous mixture of cells. Justify. | 14 |
| 3.a. Describe different types of ELISA with suitable diagrams and their application? | 7 |
| b. Discuss the role of active and passive transport mechanisms in maintaining ion gradients across the plasma membrane. | 7 |
| 4. Explain the objectives, methodology and major achievements of the Human Genome Project. Discuss its significance in understanding human health and disease. | 14 |
| 5.a. Give detail account of working of HPLC using suitable diagram. Add a note about their uses. | 7 |
| b. Write a short note on apiculture highlighting the methods used in apiculture | 7 |
| 6.a. Describe the mechanisms of cell-cell communication through gap junctions, tight junctions, and desmosomes. | 7 |
| b. Write details on RIA and its applications in detection of diseases? | 7 |
| 7. Explain how iPSC is generated from stem cells. Discuss the applications of iPSC. | 14 |
| 8.a. Describe the various cryopreservation techniques? | 7 |
| b. With the help of a flow chart explain the process of silk production. Add a note on the different types of silkworms. | 7 |

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