**ST JOSEPH’S UNIVERSITY, BENGALURU -27**

Registration Number:

Date & Session

**B.Sc (ZOOLOGY)– 4th SEMESTER**

**SEMESTER EXAMINATION: April 2024**

**(Examination conducted in May / June 2024)**

**ZO 422 IMMUNOLOGY, GENE TECHNOLOGY AND HISTOLOGY**

**(For current batch students only)**

**Time: 2 Hours Max Marks: 60**

**This paper contains TWO printed page and THREE parts**

**NOTE: Draw neat labelled diagram wherever necessary**

**PART-A**

**Answer the following 10 X 1 = 10**

1. What is Fab fragment in an antibody?
2. How DNA ligase aid in the joining of two DNA molecules?
3. How do you differentiate T-helper (TH) cell from Cytotoxic T cell (TC )?
4. What are toxoid vaccines? Give an example
5. Name the cells of adenohypophysis
6. What are ‘immunologically privileged sites’? Give an example
7. How do you differentiate the terms "Knockout" and "knock-in" with reference to genetic manipulation techniques?
8. What are Toll like receptors (TLRs)?
9. Name two scientists who won the Nobel prize in chemistry in the year 2020 for discovering CRISPR technique?
10. What are Parietal cells? Mention any one of its secretions.

**PART-B**

**Answer any FOUR from the following 5 X 4 = 20**

1. Write a short note on restriction endonucleases and its types.
2. Describe the histological zones of stomach
3. Explain the pathophysiology of Goodpasture’s syndrome
4. Define Hypersensitivity and mention its types
5. Write a short note on papillae of mammalian tongue.
6. What are cytokines? mention the properties of cytokines

**PART-C**

**Answer any THREE from the following. 3 X 10 = 30**

1. Explain the immunologic basis of graft rejection
2. Explain electroporation and microinjection mediated transformation techniques in gene cloning
3. Discuss the ethical regulations of gene cloning
4. Explain Hybridoma Technology
5. Briefly describe the histological architecture of mammalian Ovary

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