

| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU -27** |  |
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| **B.Sc. ZOOLOGY - IV SEMESTER** |  |
| **SEMESTER EXAMINATION: APRIL 2023****(Examination conducted in May 2023)** |  |
| **ZO 422- IMMUNOLOGY, GENE TECHNOLOGY AND HISTOLOGY** **(For current batch student only)** |  |
|  |  |  |  |  |  |  |  |
| **Time - 2 hrs** |   |  **Max Marks - 60** |  |  |
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| **This paper contains 2 printed page and three parts** |  |

**Note: Draw neat labelled diagrams wherever necessary**

**PART A**

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

1. Which hormone is responsible for erythropoiesis?
2. Dr. V was scanning a histological section of the tongue, he spotted one variant of papilla, which didn’t bear taste buds, which type of papilla did Dr. V spot under the microscope?
3. Circumvallate
4. Foliate
5. Filiform
6. Fungiform
7. List out any three properties of cytokines.
8. The antrum of the ovarian follicle is filled with \_\_\_\_\_\_\_\_\_fluid.
9. What causes autoimmune anaemia?
10. The phage genome modifies itself from linear genome to circular genome by connecting the \_\_\_\_\_ site.
11. Differentiate between Mast cells and Dendritic cells.
12. Mention any one product developed using genetic engineering in the following area,
13. In the agricultural sector -
14. In the vaccine sector -
15. Which among the thyroid follicles given below is highly active?



1. Define “immunological memory”

**PART B**

**Answer any FOUR of the following: 4 X 5 = 20**

1. Write a short note on antigen presenting style of MHC class I & class II molecules.
2. Describe the histological makeup of adrenal gland. Add a note on its secretions
3. Explain the structure of an antibody with a neat labelled diagram.
4. With neat labelled diagram discuss the different components of PBR322.
5. Explain the histological organization of Spleen.
6. What is hypersensitivity? Explain the major immunologic reactions for its types.

**PART C**

**Answer any THREE of the following: 3 X 10 = 30**

1. Explain the immunologic basis of graft rejection.
2. Describe the histological details of mammalian kidney
3. Give a general account on Adjuvants, immunologic tolerance and immunosuppression.
4. With neat illustration describe electroporation and liposome mediated gene transfer.