

Reg. no.-

Date: 9-12-22

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE – 27**

**B.Sc., ZOOLOGY- V SEMESTER**

**SEMESTER EXAMINATION – DECEMBER 2022**

**ZO 5118 – CELL BIOLOGY, MOLECULAR BIOLOGY AND IMMUNOLGY**

**Time: 2 ½ hours Maximum marks: 70**

This question paper has 02 printed pages and 04 parts

Note: Indicate the question numbers clearly, answer all the Part A together in first sheet of your answer paper.

Draw labelled diagrams wherever necessary.

**Part A**

**Answer the following: 7 X 1 = 7**

1. Microvilli increases the \_\_\_\_\_\_\_\_\_\_ for absorption.
2. Na-K+ pump is an example for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ transport across cell membrane.
3. Loss of apoptosis in an organism can lead into \_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Z DNA is characterized by \_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_ features.
5. One copy of DNA is preserved while the other is newly produced, hence called as \_\_\_\_\_ DNA
6. The unit of the molecular structure of a chromosome is called as \_\_\_\_\_\_\_\_.
7. The immune cells which detect, engulf and destroy the pathogens are called as \_\_\_\_\_\_\_\_.

**Part B**

**Answer the following: 2 X 4 = 8**

1. Draw a neat labelled diagram of a Golgi apparatus.
2. Define Carcinoma and Sarcoma with an example for each.
3. What is an ELISA test?
4. Define Totipotency & pluripotency in stem cells

**Part C**

**Answer any FIVE of the following: 5 X 5 = 25**

1. Explain Cell cycle, with a special reference to S phase.
2. Explain Multiple Sclerosis and Arthritis, giving the causes.
3. Explain Wobble hypothesis?
4. Explain briefly the types of carcinogens with an example for each.
5. Mentions the types of chromosomes based on the position of the primary constriction. Also add a note on Autosomes and Allosomes. (3m +2m)
6. Explain the structure of a Nucleotide.
7. Mention any two functions of Lysosomes and ribosomes each.

**Part D**

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

1. Explain the formation of the Polytene chromosome with a neat labelled diagram.
2. Describe the molecular mechanism of apoptosis in *Caenorhabditis elegans*.
3. Describe the production of monoclonal antibodies with illustrations.
4. How is DNA amplified through the PCR technique?
5. Explain the process of transcription with neat labelled diagrams.