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Register Number:

Date: 6-12-22

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

**B.Sc. (ZOOLOGY) - III SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**ZO322 – MOLECULAR BIOLOGY, TOOLS AND TECHNIQUES IN BIOLOGY**

**Time- 2 hrs Max marks-60**

**Note: Draw diagrams wherever necessary**

**This paper contains Three parts and two printed pages**

**Part – A**

**I. Answer all the following. 10X1=10**

1. State Chargaff’s rule
2. \_\_\_\_\_\_\_\_\_\_\_\_\_ separates the two strands of DNA during PCR
3. A-form of DNA has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_conformation of the ribose sugar
4. \_\_\_\_\_\_\_\_\_ RNA has an acceptor arm.
5. \_\_\_\_\_\_\_\_\_\_ is used as intercalating agent in Agarose gel preparation.
6. Phase contrast microscope are most useful in observing \_\_\_\_\_\_\_\_\_\_\_\_\_.
7. rRNA is transcribed by \_\_\_\_\_\_\_\_\_\_\_\_ Polymerase enzyme.
8. Define anticodon
9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_enzyme activity is involved in translation.
10. Enumerate BLAST

**Part - B**

**II. Answer any Four of the following. 4X5=20**

**11.** Mention the enzymes with their functions involved in DNA replication.

**12.** Describe the principle of Fluorescence microscope with a neat labelled diagram.

**13.** Outline the characteristics of Genetic code.

**14.** Explain the process of transcription initiation in eukaryotes.

**15.** Mention three public biological database organization.

**16.** write a short note on affinity chromatography with a neat labelled diagram.

**Part – C**

**III. Answer any Three of the following. 3X10=30**

**17.** Describe the process of sanger’s sequencing method of DNA.

**18.** Explain the models of replication in prokaryotes.

**19.** Describe gene regulation of prokaryotes with operon inducible system

**20.** What is PCR? Explain the procedure of PCR with a labelled diagram and add a note on its application.