

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**  
**(For candidates admitted during the academic year 2004 – 2005)**

**SUBJECT CODE: ZL/MO/ML64**

**B. Sc. DEGREE EXAMINATION APRIL 2007**  
**BRANCH – VI – ZOOLOGY**  
**SIXTH SEMESTER**

**COURSE : MAJOR – OPTIONAL**  
**PAPER : MOLECULAR BIOLOGY**

**TIME : 3 HOURS** **MAX. MARKS: 100**

**SECTION – A**

**ANSWER ALL QUESTIONS: (10 X 3 = 30)**

1. What is a replication fork?
2. What is meant by cis-acting and trans-acting sequence?
3. What is a pre-initiation complex (PIC) Pertaining to transcription?
4. Define a ribozyme.
5. What are cyclins.
6. What is short – gun sequencing?
7. What is a telomere and telomerase?
8. Describe reverse transcription.
9. What is the significance of protein folding?
10. Describe SCID with an example.

**SECTION – B**

**ANSWER ANY FIVE QUESTIONS: (5 X 6 = 30)**

11. Write short notes on Lac operon
12. Briefly explain what is post translational modification and how it happens by addition of different functional groups?
13. Describe the Rolling Circle model of Replication.
14. Write short notes on Splicing.
15. Describe the different phases of cell cycle and what are the roles of different cyclins.
16. Write short notes on factors that regulate cell proliferation and function
17. Write short notes on antisense RNA and its applications.

**SECTION – C**

**ANSWER ANY TWO QUESTIONS:**

**(2 X 20 = 40)**

18. Describe the different methods of DNA sequencing and its applications in the field of molecular Biology.
19. Describe in detail the process of Eukaryotic Transcription.
20. Write an essay on DNA Replication.
21. Give a detailed account of Mitochondrial genes and organization of the mitochondrial genome.

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