

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI –600 086
(For candidates admitted from the academic year 2011 - 12)

SUBJECT CODE: 11BI/PC/MB24

M. Sc. DEGREE EXAMINATION, APRIL 2012
BIOINFORMATICS
SECOND SEMESTER

COURSE : CORE

PAPER : MOLECULAR BIOLOGY

TIME : 3 HOURS

MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS

(20 X 1=20)

1. Define genetic code.
2. What are nucleic acids?
3. Define transcription.
4. Define the terms sense and antisense strands of DNA.
5. What is a gene?
6. What is a genome?
7. What are the three major steps in transcription?
8. What is wobble?
9. Define meiosis.
10. What are centromeres?
11. What are nucleotides?
12. Give the basic structure of a purine base.
13. Mention any two differences between a eukaryotic and a prokaryotic cell.
14. Name any two steroid hormones.
15. Define translation.
16. What are homeotic genes?
17. What are the stages in a cell cycle?
18. What happens in the metaphase of mitosis?
19. Give any two examples for a prokaryotic organism.
20. Mention any two important functions of rRNA.

SECTION – B

ANSWER ANY FOUR QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 500 WORDS. ALL ANSWERS CARRY EQUAL MARKS. DRAW DIAGRAMS WHEREVER NECESSARY (4 X 10 = 40)

21. Draw a neat labelled diagram of the DNA.
22. Explain transcription in prokaryotes.
23. Write a note on heat- shock genes.
24. Explain gene regulation in prokaryotes.
25. Give a detail account on the organisation and functions of chloroplast genome.
26. Write the steps involved in cell cycle regulation.
27. Illustrate the stages of mitosis.

SECTION – C

ANSWER ANY TWO QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 1200 WORDS. ALL ANSWERS CARRY EQUAL MARKS. DRAW DIAGRAMS WHEREVER NECESSARY (2 X 20 = 40)

28. Explain the genetic basis and characteristics of cancer.
29. Give a detail account on the steps involved in the transcription and translation in mitochondria.
30. Explain how the vertebrate immune system is controlled genetically.
31. Write short notes on: a) Types of DNA
b) Specialised mechanism for regulating rRNA genes.
