STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2010 – 11)

SUBJECT CODE: BT/MC/ML64

B. Sc. DEGREE EXAMINATION, APRIL 2013
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SIXTH SEMESTER

COURSE : MAJOR – CORE
PAPER : MOLECULAR BIOLOGY
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION A

ANSWER ALL QUESTIONS

I CHOOSE THE CORRECT ANSWER **(5 x 1 = 5 Marks)**

1. In RNA Adenine is paired with
   a. Thymine b. Uracil c. Cytosine d. Guanine
2. The widely accepted model of DNA replication is _____.
   a. Conservative b. Semi conservative c. Despensive d. Rolling circle
3. Statement A: tRNAare synthesized by RNA polymerase III.
   Statement B : RNA polymerase III is located at nucleoli.
   a. Statement A is correct but B is not correct.
   b. Statement A is not correct but B is correct.
   c. Both the statements are correct.
   d. Both the statements are not correct.
4. A short sequence of nucleotide responsible for mutation is _____.
   a. Cistron b. Recon c. Muton d. Polyprotein
5. β lactamase is triggered by Tn elements for _____.
   a. Drug resistance b. Avirulence c. Recombination d. Mutation

II FILL IN THE BLANKS **(5 x 1 = 5 Marks)**

6. Z DNA has _____ base pairs per helical turn.
7. Release Factor (RF1) recognizes the _____ codon.
8. UV induced DNA damage is detective in individuals suffering from _____.
9. The lagging strand primers are removed by _____.
10. Transposition can takes place by either replicative or _____methods.

III State whether the following statements are true or false. (4 x 1 = 4 Marks)

11. Denaturation of dsDNA involves breakage into short segments.
12. The amino acyl tRNAsynthetase is non specific in identifying amino acids.
13. The transcribed RNA is complementary to the template strand.
14. Selfish DNA is nothing but IS elements.

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IV Match the following. **(4 x 1 = 4 Marks)**

15. DNA polymerase	a. Regulation
16. RNA polymerase	b. Translation
17. Amino acyl tRNAsynthetase	c. Transcription
18. β – galactosidase	d. Replication

V Write short notes on any SIX each in about 50 words. **(6 x 3 = 18 Marks)**

19. Chargaff's rule 20. Nulear proteins 21. Sigma factor 22. Hogness box
23. ara operon 24. Splicing 25. Polycistronic 26. t RNA 27. Transposon

SECTION B

ANSWER ANY FOUR OF THE FOLLOWING; EACH ANSWER SHOULD NOT EXCEED 200 WORDS. **(4 x 6 =24)**

28. Give the mechanism of transcription in prokaryots.
29. Explain about various methods of DNA repairing mechanism.
30. Write short notes on post translational modifications of m RNA.
31. Enumerate and explain the properties of genetic code.
32. Briefly explain about genetic imprinting.
33. With suitable diagrams, describe point mutation.

SECTION C

ANSWER ANY TWO OF THE FOLLOWING; EACH ANSWER SHOULD NOT EXCEED 1000 WORDS. **(2 x20 = 40)**

34. Illustrate and explain the mechanism of protein synthesis.
35. Give details on the mechanism of transposition.
36. Bring out the experiment to prove semiconservative model of replication and describe the mechanism of replication.
37. Write details on prokaryotic gene regulation with reference to lac operon.

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