C 15436 **(Pages : 2)** **Name**

Reg. No.....

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2011

(CCSS)

Microbiology – Core Course

MB 4B 06 – MICROBIAL GENETICS AND GENETIC ENGINEERING

Time : Three Hours Maximum : 30 Weightage

Section I

Answer **all** *questions.*

1. A change occurred in a sequence of DNA from 5' ATT GAA CTC ATG 3' to 5' ATT GAA CGC ATG 3'. Indicate what kind of change is this.
2. A mutation causing a change in the ORF is called _____
3. RNA dependant DNA polymerase activity is exhibited by _____
4. Eukaryotic elongation factor eEF2 is strongly inhibited by the _____ toxin.
5. Protruding ends generated by Type II restriction enzymes are called _____ ends.
6. The reporter gene in a pUC vector is _____
7. _____ is the enzyme used for the joining of a 5'phosphate and a 3'hydroxyl group.
8. _____ is the term used for transferring DNA from a gel to nitrocellulose membrane and visualizing the band of interest with a probe.
9. Denaturation of DNA can be done by _____
10. _____ is the term used for introducing DNA into E.coli.
11. In prokaryotic transcription, how many RNA polymerases are involved?
12. In the lac operon, the repressor binds to the operator in the presence of lactose. Is this statement True *or* False.

(12 x ¼ = 3 weightage)

Section II

Answer **all** *questions.*

13. What is a gene?
14. What is Klenow enzyme?
15. How do you stain DNA in an agarose gel?
16. Write about the cloning site in a plasmid vector.

Turn over

17. What are competent cells?
18. What is alpha complementation?
19. What is the principle of sequencing by the method of Sanger?
20. What are cosmids?
21. When is alkaline phosphatase used in genetic engineering?

(9 x 1 = 9 weighty

Section III

Write about any **five** *of the following.*

22. Conjugation.
23. Microinjection of DNA.
24. Histidine tagged recombinant protein.
25. Glycosylation in yeast.
26. Southern blotting.
27. Transduction.
28. PCR.

(5 x 2 = 10 weightage)

Section IV

Answer any **two** *questions.*

29. Choose any plasmid vector and write in detail how cloning and screening for the presence of the gene can be done.
30. Write in detail about the structure and role of tRNA, rRNA and mRNA in protein synthesis.
31. Describe the *lac* operon in detail, with suitable figure.

(2 x 4 = 8 weightage)