C 60121 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2019

(CUCBCSS)

Microbiology

MBY 6B 14—MICROBIAL GENETICS AND GENETIC ENGINEERING

Time : Three Hours Maximum : 120 Marks

Part A

Answer **all** *the following.*
Each question carries ½ mark.

1. Point where two homologous non-sister chromatids exchange genetic material during chromosomal crossover in meiosis is called ————.
2. In gene therapy for ADA-SCID, the therapeutic gene called ADA was introduced into ———— cells of patients.
3. Sickle-cell disease occurs when the sixth amino acid, glutamic acid, is replaced ————.
4. Trisomy 21 is commonly known as ————.
5. The primary complex responsible for the transition from G2 to M is ————.
6. Expression of human blood type AB is an example for ————.
7. DNA replication takes place during ———— phase of cell cycle.
8. Ti plasmid is ————.
9. Alleles that need only be present in one copy in an organism to be fatal are called as ————.
10. Primers form stable associations with the denatured target DNA during ———— stage of PCR.
11. ddNTPs act as chain terminators due to the absence of ————.
12. In blue white screening, cells with rDNA containing vector will appear as ————.

(12 × ½ = 6 marks)

Part B (Short Answer Type Questions)

Answer **all** *the following.*
Each question carries 3 *marks.*

13. Explain PCR.
14. Explain importance of insertional inactivation *of the* lacZ' gene.

Turn over

15. Describe Go Phase.
16. Explain inversion mutations.
17. Explain applications of genetic engineering.
18. Describe uses of hybridization probe.
19. Explain function of DNA ligase.
20. Write notes on Flavr Savr.
21. Describe Co-dominance.
22. Explain pleiotrophy.

(10 × 3 = 30 marks)

Part C (Short Essay Type Questions)

Answer any **six** *of the following.*
Each question carries 8 *marks.*

23. Write notes on principles of inheritance.
24. Describe back and suppressor mutation.
25. Explain DNA sequencing methods.
26. Describe chromosomal mutations.
27. Explain interference and co-efficient of confidence.
28. Explain difference between apoptosis and necrosis.
29. Describe terminator gene technology.
30. Describe gene library.

(6 × 8 = 48 marks)

Part D (Essay Type Questions)

Answer any **two** *questions.*
Each question carries 18 *marks.*

31. Write an essay on mitosis and meiosis.
32. Explain gene therapy and ethical problems with recombinant DNA technology.
33. Describe various gene transfer techniques in prokaryotes and its application in gene mapping.

(2 × 18 = 36 marks)