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C 1110 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, MARCH 2021

Botany

BOT 6B 13—GENETIC ENGINEERING

Time : Three Hours Maximum : 80 Marks

Section A

Answer **all** *questions.*
Each question carries 1 *mark.*

1. Enzyme used to remove proteins during DNA isolation.
2. Source of *Taq* polymerase.
3. Temperature set in PCR for DNA denaturation.
4. What is a palindromic sequence ?
5. Name a transgenic plant.
6. Expand PAC.
7. Define nick translation.
8. Enzyme called the molecular glue.
9. Give one use of DEAE dextran.
10. Name a gel loading dye.

(10 × 1 = 10 marks)

Section B

Answer at least **five** *questions.*
Each question carries 4 *marks.*
All questions can be attended.
Overall Ceiling 20.

11. How is the purity of isolated DNA determined ?
12. Mention two methods to lyse cells during DNA isolation.
13. What is a genomic library ? What is it used for ?
14. Describe a method to isolate poly A RNA.
15. What is dot blot transfer ?
16. What are RNA probes ? How is it important ?

Turn over

17. Discuss the role of alkaline phosphatase in rDNA technology.

18. Define electroelution.

19. Differentiate between transfection and transduction.

20. What are DNAse inhibitors ?

(5 × 4 = 20)

Section C

Answer at least **five** *questions.*
Each question carries 7 *marks.*
All questions can be attended.
Overall Ceiling 35.

21. Enumerate the steps involved in the construction of a cDNA library.

22. What is random integration transgenesis ? Discuss its fate.

23. Explain, in detail, antisense and RNAi technology.

24. Write a note on the steps involved m site directed mutagenesis by PCR.

25. Elaborate on the ethical and social issues concerned with rDNA technology.

26. Discuss two methods for the purification of RNA.

27. What are GMOs ? Analyze their applications with examples.

28. How is the desired gene prepared for cloning experiments ?

(5 × 7 = 35)

Section D

Answer at least **one** *question.*
Each question carries 15 *marks.*

29. What are recombinants ? Describe the methods adopted to select recombinants after cl experiments.

30. Discuss the characteristics of a good cloning vector. With examples, describe a cloning ve shuttle vector and an expression vector.

31. Discuss the various blotting techniques studied and their applications.

(1 × 15 = 15)