

SIXTH SEMESTER U.G. DEGREE EXAMINATION, MARCH 2023

(CBCSS-UG)

Botany

BOT 6B 14 (E1)—GENETIC ENGINEERING

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answers)*Answer all questions.**Each question carries 2 marks.*

1. How do you remove proteins from a cell ?
 2. What is the principle of UV spectrophotometer ?
 3. How does the commercial kit for DNA extraction work ?
 4. Which solution is used in plasmid DNA isolation ?
 5. What is RNase and mention its use ?
 6. Write the procedure to clean up lithium chloride.
 7. What is the purpose of the molecular weight marker in agarose gel electrophoresis ?
 8. What is the difference between dot blot and Western blot ?
 9. Why is radioactive labelling a valuable technique in molecular biology ?
 10. What are the different types of cloning vectors ?
 11. How gene of interest can be cloned in suitable vector ?
 12. What are the main advantages of Agrobacterium-mediated gene transfer ?
- (Ceiling 20 marks)

Section B (Paragraph)*Answer all questions.**Each question carries 5 marks.*

13. What does the luciferase enzyme do after being made ?
14. What is antisense oligonucleotide technology ?
15. When foreign DNA is transferred into a bacterial cell what are three possible fates for the

Turn over

DNA ?

16. What are reporter genes and how are they used when plant cells are transformed ?
17. Explain the differences between transfection and transduction.
18. What are the applications of genomic DNA libraries ?
19. Explain Hybrid vectors.

(Ceiling 30)

Section C

Answer any one question.

The question carries 10 marks.

20. Give a detailed account on isolation and purification of RNA.
21. Write an essay on PCR and RNA probes.

(1 × 10 = 10)