FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2019
(CUCSS - PG)
(Botany)
CC15P BO4 E14 – GENETIC ENGINEERING
(Regular/Improvement/Supplementary)
(2015 Admission onwards)

Time: Three Hours   Maximum: 36 Weightage

Part A
Answer *all* questions. Each question carries 1 weightage.

1. Explain Golden Rice.

2. Comment on sigma factor in transcription.

3. Explain PBR 322

4. Distinguish between south western and north western blotting techniques.

5. What are insertion and replacement phage vectors?

6. Write three examples for type II restriction enzyme and their specificity in cleavage .

7. Mention the uses of alkaline phosphatase in genetic engineering techniques.

8. Comment on RNA nanotechnology.

9. Explain the use of ethidium bromide and bromophenol blue in gel electrophoresis.

10. Comment on VNTRs and their significance in genetic fingerprinting.

11. What are recombinant live vaccine? Give an example.

12. Explain eugenic gene therapy with the help of an example.

13. Write note on receptor mediated gene transfer.

14. What is Seigel classification of nanomaterials?

(14 x 1 = 14 Weightage)

Part B
Answer any *seven* questions. Each question carries 2 weightage.

15. Explain the mechanism and the importance of MEMS nanoinjector in delivering DNA

16. Discuss nanorobots for DNA repair.

17. Explain genetic engineering in the field of growth hormone production.

18. Discuss the importance of *mtl ID*, *P5CS* and *aroA* genes in transgenic approach.

19. Give an account on inverse PCR and its importance.

20. With suitable diagram explain chain-termination method of DNA sequencing.

21. What are co-integrate and binary vectors? Explain their use in gene transfer.

22. Explain T-DNA transfer in *A. tumifaciens* and its scope in gene transfer technique.

23. Give an account on SDS-PAGE

24. Explain the role of enhancer and silencer sequences in gene expression with specific examples.

(7 x 2 = 14 Weightage)

Part C
Answer any *two* questions. Each question carries 4 weightage.

25. Explain various molecular markers and their applications in genetic analysis.

26. Explain various Blotting techniques.

27. Describe the creation of rDNA molecule and construction of genomic library.

28. With the help of suitable examples explain how genetic engineering is useful for the bioremediation of various environmental pollutions.

(2 x 4 = 8 Weightage)

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