

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



**B.Sc. DEGREE EXAMINATION – ADVANCED ZOOLOGY AND BIOTECHNOLOGY**

**FIFTH SEMESTER – NOVEMBER 2019**

**AZ 5520 – GENETIC ENGINEERING**

Date: 04-11-2019

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

**Part-A**

Answer all the questions

(10×2=20 Marks)

1. What is meant by complementary base pairing? Give examples.
2. Differentiate between heterochromatin and euchromatin.
3. Illustrate and label the different parts of a plasmid vector.
4. How is LacZ gene used for selection of recombinant cells?
5. Describe how DNA microinjection is used for genetic modification of cells.
6. What are restriction enzymes? Give an example.
7. What is an edible vaccine?
8. How are genomic libraries created?
9. Define pharming giving a suitable example.
10. Give any two agricultural applications of biotechnology.

**Part-B**

Answer any FOUR questions

(4×10=40 Marks)

11. Write a note on prokaryotic gene organization.
12. Explain the advantages and disadvantages of using E. coli cells as host cells for genetic engineering.
13. Give a detailed account of the structure of DNA.
14. Discuss complementation of defined mutations of HGPRT and DHFR genes as a method for screening recombinant cells.
15. Describe the indirect cloning method and add a note on cDNA libraries.
16. Write a note on the environmental applications of biotechnology.

**Part-C**

Answer any TWO questions

(2×20=40 Marks)

17. Describe eukaryotic gene organization with suitable illustrations.
18. Write a detailed note on bacteriophage vectors.
19. Discuss how gene transfer into host cells can be done using liposomes, electroporation and gene guns.
20. Explain the following: (i) Colony hybridization (ii) Western blotting

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