LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – **NOVEMBER 2016**

AZ 5520/AZ 5514/AZ 5507 – GENETIC ENGINEERING

Date: 09-11-2016 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART – A

Answer ALL questions, each in a few words (10 ò 2 = 20 marks)

01. State the Chargaff's rule of DNA composition?
02. What are the functions of mRNA and tRNA?
03. What are M13 bacteriophages?
04. What are hybrid plasmids?
05. What is a terminal transferase?
06. Explain the nomenclature of the restriction endonuclease "*EcoRI*".
07. What is a hybridization probe in genetic engineering?
08. What is a cDNA library?
09. What is a transgenic plant? Mention any two advantages of such a plant.
10. Comment on Yoshinori Ohsumi**.**

PART B

Answer any FOUR questions, each in about two pages (4 ò 10 = 40 marks)

11. What are plasmids? Give any four reasons why the plasmids have become an essential tool in genetic engineering.
12. Describe the genome organization.
13. Discuss the uses of bacteriophages in genetic engineering.
14. Describe any two methods of selection of recombinants.
15. Explain the steps involved in Southern blotting technique.
16. Discuss the socio-ethical problems of genetic engineering.

PART C

Answer any TWO questions, each in about 4 pages (2 ò 20 = 40 marks)

17. Give an account of the fundamentals of recombinant DNA technology.
18. Explain the various methods of gene transfer.
19. Give an account of the biochemistry and uses of any five enzymes used in gene cloning.
20. Write explanatory notes on: (i) Reporter gene; (ii) Alkaline phosphatases; (iii) HGP; (iv) PCR.

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