

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY & PLANT BIO-TECH.

FOURTH SEMESTER – APRIL 2010

PB 4500 / PBB 506 - CYTOGENETICS AND PLANT BREEDING

Date & Time: 22/04/2010 / 9:00 - 12:00 Dept. No.

Max. : 100 Marks

PART A

(20 marks)

Answer All questions

I Choose the Correct Answer

(5 x 1 = 5 marks)

01. The predominant chemical component of plant cell wall is
a. Pectin b. Lignin c. Cellulose d. Cutin
02. Yellow coat colour in mice is an example for
a. Incomplete dominance b. Co-dominance c. Lethal genesd. Epistasis
03. The initial amino acid in eukaryotic protein synthesis is
a. Methionine b. Formylmethionine c. Glycine d. Phenylalanine
04. *Raphano brassica* is an example for
a. Haploid b. Diploid c. Amphidiploid d. Tetraploid
05. Which one of the following is involved in emasculation?
a. Anther b. Gynaecium c. Petal d. Sepal

II State whether the following statements are True or False:

(5 x 1 = 5 marks)

06. Chloroplast help in the respiration process.
07. Incomplete dominance genes are expressed in homozygous condition.
08. The basic unit of a gene responsible for mutation is recon.
09. Acrydine dye induces transition type of mutation.
10. ICAR is located at New Delhi.

III. Complete the following

(5 x 1 = 5 marks)

11. Crossing over occurs during the ----- stage of meiosis.
12. Cytoplasmic inheritance is influenced by ----- sex.
13. Capping of mRNA is the addition of ----- group to adenine.
14. Thymine dimerization is caused due to -----.
15. Selection method in self pollinated crop plants is known as -----.

IV. Answer the following, each in about 50 words

(5 x 1 = 5 marks)

16. Comment on Heterochromatin.
17. Write notes on Co-dominance.
18. What are introns and exons?
19. Define Frame shift mutation.
20. What are centres of origin?

PART B (5 x 8 = 40 marks)

Answer any FIVE of the following, each within 350 words only. Draw diagrams and flowcharts wherever necessary.

21. Explain the ultra structure of mitochondria.
22. Describe the method of sex determination in plants.
23. Write an account of cytoplasmic inheritance in *Mirabilis*.
24. Enumerate the properties of genetic code.
25. Explain the mechanism of translation process.
26. Give an account on the *lac* Operon model.
27. Write notes on DNA repair mechanism.
28. Briefly explain the hybridization techniques.

PART C (2x 20 = 40 marks)

Answer the following, each within 1500 words only. Draw diagrams and flowcharts wherever necessary.

29. (a) Illustrate with neatly labelled diagrams of meiotic stages with foot notes.
Or
(b) Write an essay on quantitative inheritance with examples.
30. (a) Describe the variations caused due to chromosomal numbers.
Or
(b) Write detailed notes on causes and preventive measures of crop deterioration.
