

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – November 2009

PB 5510 - GENETICS PLANT BREEDING & EVOLUTION

Date & Time: 05/11/2009 / 9:00 - 12:00 Dept. No.

Max. : 100 Marks

PART – A (20 marks)

I. Choose the correct answer.

(5 x 1=5)

1. The ratio of the complementary Genes
a) 9:7 b) 9:3:3:1 c)12:3:1 d)9:6:1
2. The activity of an enzyme may be inhibited by accumulation of its end products is called
a) Competitive b) Non Competitive c) Feed Back d) Mutagens
3. Point Mutation is
a) Chromosomal Mutation b) Somatic Mutation c) Bud Mutation d) Gene Mutation
4. The adaptation of an individual to a changed climate is called
a) Climatization b) Acclimatization c) Heterosis d) Hybridization
5. The following does not play and part in evolution
a) Mutation b) Polyploidy c) Natural Selection d) Acquired Characters

II. State whether the following statements are true or false

(5 x 1= 5)

6. A well known example of multiple Alleles is the Gene for eye colour in *Drosophila* .
7. The repressor produced by the regulator gene exercises its effects through a special part of the genome called regulator gene.
8. Colchicine is a physical mutagen.
9. Dr. G.H.SHULL coined & proposed the term HETEROSIS.
10. HUGO DE VRIES put forward the theory of Natural selection.

III. Complete the following

(5 x 1= 5)

11. _____ Genes produces diseases which are fatal at different stages of development.
12. The smallest indivisible unit of the DNA that can undergo change resulting in mutations is a single nucleotide base called _____.
13. *Brassica Juncea* is an allotetraploid between _____.
14. The removal of stamens is called _____.
15. The transmission of acquired characters is crucial to the theory of _____.

IV. Answer all questions, each within 50 words

(5 x 1= 5)

16. What are Pseudo alleles?
17. Define Transformation
18. Write notes on Autopolyploidy
19. Comment on Negative heterosis
20. What is Speciation?

PART - B

(5 x 8 = 40 marks)

Answer any Five, each within 350 words. Draw diagrams wherever necessary:

21. Explain MONOHYBRID CROSS and its modifications
22. Give an account on semi conservative model of DNA REPLICATION.
23. What are the objectives of PLANT BREEDING?
24. Write notes on mutagens.
25. Describe pure-line selection.
26. Give an account on Hybridization techniques.
27. Write notes on theories of organic evolution.
28. Explain the isolation mechanisms of species.

PART -C

(2 x 20 = 40 marks)

Answer the following, each within 1500 words. Draw diagrams wherever necessary:

29. a) Explain the di-hybrid cross & its modifications.

(OR)

- b) Write an essay on chromosomal aberrations.

30. a) Give an account on Heterosis.

(OR)

- b) Write an essay on Natural selection.

\$\$\$\$\$\$