

Mid-West University
Examinations Management Office
End Semester Examination 2081

Bachelor level/ B. Sc. /5th Semester

Time: 3 hours

Subject: Cytogenetic and Plant Breeding (BOT453)

Full Marks: 60

Pass Marks: 30

Candidates are required to give their answer in their own words as far as practicable. The figures in the margin indicate full marks.

Group A

Attempt All questions.

[4x8 = 32]

1. Define plant breeding. Discuss different methods of hybridization for the crop improvement.
2. Define linkage. Discuss the types of linkage with suitable illustration. And also write the significance.
3. What is DNA damage and repair? Discuss the semi- conservative mode of DNA replication with suitable diagram.

OR

Define cell cycle. Discuss the mechanism and theories related to crossing over.

4. Write an explanatory note on:
 - a) Multiple alleles
 - b) Ultrastructure of nucleus

Group B

Answer All questions in brief.

[7x3 = 21]

5. Describe the fluid mosaic model of cell membrane and list out the function of cell membrane.
6. Discuss the application of plant breeding in agricultural field.
7. What do you mean by sex – chromosome? Describe different modes of sex- determination in plants.
8. Discuss about the cytoplasmic inheritance with suitable example.

OR

Define cytoskeleton. Describe the general principle of cell signaling.

9. Define epistasis. Explain the process of incomplete dominance in 4 o'clock plant.
10. Describe the law of independent assortment with suitable example.
11. Define genetic code. Mention the characteristics of genetic code.

Group C

Answer Any Seven questions in very short.

[7x1 = 7]

12. "Pleiotropic genes are called lethal gene", why?
13. What do you understand by syncytial cells?
14. Write down the function of plasmodesmata in plant cell.
15. Define the term heterochromatin.
16. Why the metaphase chromosome is usually studied in genetics?
17. What does it mean by denaturation and renaturation of DNA?
18. What do you mean by test- cross and reciprocal- cross?
19. Write any two functions of Golgi complex.
20. What do you mean by karyotype?

The End