

Mid-West University  
**Examinations Management Office**  
End Semester Examination 2081

Bachelor level/ B. Sc. /5<sup>th</sup> Semester

Time: 3 hours

Subject: Cell biology, Genetics and Molecular biology (ZOO453)

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**

Answer the following questions. .

[4x8 = 32]

1. How criss-cross inheritance occurs in human beings? Explain.
2. Define sex determination. Describe chromosomal theory for determination of sex.
3. Describe the structure of polytene and lamp brush chromosomes.
4. What is crossing over? Describe mechanism of crossing over with its significance.

**OR**

What is epistasis? Describe different types of epistasis with examples.

**Group - B**

Answer the following questions in brief (any seven)

[7x3 = 21]

5. Discuss the structure and function of endoplasmic reticulum.
6. Write an account of lysosomes and their role in cellular metabolism.
7. Discuss the double helical model of DNA as proposed by Watson and Crick.
8. Describe fluid- mosaic model of plasma membrane.
9. Discuss the properties of genetic code.
10. How is the sex of organism controlled hormonally? Describe.
11. What is polymerase chain reaction (PCR)? Discuss the uses of PCR with its type.
12. Mention the uses of DNA fingerprinting.

**Group - C**

Answer the following questions in very short (any seven).

[7x1 = 7]

13. Mention the function of cristae in mitochondria.
14. Which organelle is called suicidal bag and why?
15. Name the nitrogenous bases present in RNA.
16. Define genomics.
17. How is sex determined in cockroach?
18. Give the meaning of pleiotropy.
19. Define incomplete dominance.
20. Mitochondria is called semi- autonomous organelle, why?
21. Define frame-shift mutation?

**The End**