D 110104 **(Pages : 2)** **Name.....**

Reg. No.....

FIFTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2024

Botany

BOT 5B 09—CELL BIOLOGY AND BIOCHEMISTRY

(2019 Admission onwards)

Time : Two Hours Maximum : 60 Marks

Section A

Answer **all** *questions.*
Each question carries 2 *marks.*
Ceiling : 20 *Marks.*

1. Mitochondria is the power house of the cell, why ?
2. What is Vacuole ? Comment on its functions.
3. Distinguish between polyploidy and aneuploidy.
4. What are Lipids ? Give an example for simple lipids.
5. Which are the different phases of interphase ? Comment on its significance.
6. What are the significance of crossing over ? Name the meiotic stage at which it happens.
7. Write the roles of centrioles in a cell.
8. Define Nucleotide. What are its components ?
9. What is Coenzyme ? Give an example.
10. What are Dipeptides ?
11. Name the major classes of enzymes based on IUB nomenclature.
12. How does monosaccharide differ from oligo saccharide ?

Turn over

Section B

Answer **all** *questions.*
Each question carries 5 *marks.*
Ceiling : 30 *Marks.*

13. Draw the structure of chromosome and explain the various types of chromosomes based on morphology.
14. With a suitable labelled diagram, explain the fluid mosaic model of plasma membrane.
15. Explain the types of enzyme inhibition.
16. With a labelled digram, explain the structurerand significance of polytene chromosome.
17. Write an account on secondary metabolites in plants and their roles.
18. Describe the structural levels of proteins. Give any one example for each.
19. Explain the classification of amino acids.

Section C

Answer any **one** *question.*
The question carries 10 *marks.*

20. Explain the various phases of mitosis with labelled diagram of each stage. Mention its significance.
21. Write an essay on the classification and chemistry of carbohydrates.

(1 × 10 = 10 marks)

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Section A

Answer **all** *questions.*
Each question carries 2 marks.
Ceiling : 20 *Marks.*

1. What is Interphase ? Mention its significance.
2. Draw the labelled diagram of mitochondria.
3. Differentiate between rough and smooth endoplasmic reticulum.
4. What are complex lipids ? Give an example.
5. Name the meiotic stage at which crossing over happens. Mention the genetic effects of crossing over.
6. What is Mitosis ? Mention its significance.
7. What are the functions of vacuoles in a cell ?
8. What is fatty acid ? Give an example for saturated fatty acid.
9. What is Isozyme ? Give an example.
10. Define Dipeptide.
11. Differentiate between active site and allosteric site.
12. What are poly saccharides ? Give an example.

Turn over

Section B

Answer **all** *questions.*
Each question carries 5 *marks.*
Ceiling : 30 *Marks.*

13. With a suitable diagram, explain the fluid mosaic model of plasma membrane.
14. Discuss the numerical aberrations of chromosomes.
15. Describe the important events that occur during prophase-1 of meiosis.
16. Write an account on secondary metabolites in plants and discuss their roles.
17. Briefly explain the structural levels of proteins.
18. Write a note on classification of carbohydrates with examples.
19. How do you classify amino acids.

Section C

Answer any **one** *question.*
The question carries 10 *marks.*
Ceiling : 10 *Marks.*

20. Explain the structure and functions of special types of chromosomes.
21. Discuss the mechanism of enzyme action and the factors which influences it. Describe the various ways of enzyme inhibition.

(1 × 10 = 10 marks)