



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**

**THIRD SEMESTER – NOVEMBER 2022**

**17/18UPB3MC02 – CELL BIOLOGY AND EVOLUTION**

Date: 26-11-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

**PART – A**

**Answer the following, each within 50 words.**

**(10 x 2 = 20 marks)**

1. Give the functions of ABBE condenser.
2. What are fluorochromes? Give example.
3. Comment on ergostic substances.
4. Mention the components of endoplasmic reticulum.
5. Cite the importance of satellite chromosome.
6. List the significances of karyotype.
7. Draw diagram of chromatins showing chiasmata.
8. Brief note on laggard chromosome.
9. Define the theory of spontaneous generation.
10. Write note on mutation theory of evolution.

**PART – B**

**Answer the following, each within 500 words. Draw diagrams / flow charts wherever necessary.**

**(5 x 7= 35 marks)**

11. (a) List the physical and biological properties of cytoplasm.  
(or)  
(b) Draw the ray diagram and compile the components and applications of phase contrast microscope.
12. (a) Explain the ultra-structure of chloroplast. List the functions.  
(or)  
(b) Describe the organization of mitochondria. Mention its functions.
13. (a) Bring out the details on the chemical composition of chromosomes.  
(or)  
(b) Illustrate and explain the morphology of chromosomes.
14. (a) Highlight the details on the various stages of cell cycle.  
(or)  
(b) Elaborate with diagrams on the stages of mitotic cell division.
15. (a) With suitable examples, describe Lamarckian theory of evolution.  
(or)  
(b) Describe Darwinian theory of evolution with suitable examples.

## PART C

Answer any three of the following, each within 1200 words. Draw diagrams / flow charts wherever necessary. (3 x 15= 45 marks)

16. Compare the components, working and applications of TEM and SEM.
17. Explicate the ultrastructure, chemical composition and functions of plant cell wall.
18. Write detailed notes on the molecular organization of special types of chromosomes.
19. Illustrate and explain the substages of Meiosis.
20. Write an essay on speciation and isolating mechanisms.

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