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. Time: 09:00 AM - 12:00 NOON

PART – A

Answer the following, each within 50 words.

- 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)

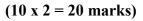
- (b) Draw the ray diagram and compile the components and applications of phase contrast microscope.
- 12. (a) Explain the ultra-structure of chloroplast. List the functions.
 - (b) Describe the organization of mitochondria. Mention its functions.
- 13. (a) Bring out the details on the chemical composition 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.



Max. : 100 Marks

B.S

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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