

# **KAMARAJ COLLEGE (Autonomous)**

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

**(5 Pages)**

**Reg. No: .....**

**Question Code No: 25000605**

**Course Code: 24UMZ031**

**UG Degree - End Semester Examinations, November 2025**

**Third Semester**

**B.Sc. ZOOLOGY**

**Cell Biology**

**(For those who joined in July 2024 onwards)**

**Time : 3Hours**

**Maximum : 75 Marks**

**PART – A (10 × 1 = 10 Marks)**

**Answer ALL Questions**

**Choose the correct answer:**

1. Cell theory was proposed by

(a) Hooke and

(b) Schleiden and Schwann

Leeuwenhoek

(c) Darwin and Wallace

(d) Watson and Crick

2. The main principle of centrifugation is based on

(a) Density differences

(b) Colour intensity



- (a) Meselson and Stahl      (b) Watson and Crick  
(c) Franklin and Wilkins      (d) Schleiden and Schwann
9. In which phase the crossing over occurs?  
(a) Mitosis      (b) Meiosis I  
(c) Amitosis      (d) Meiosis II
10. Which of the following is the best suitable role of Apoptosis?  
(a) It causes cancer      (b) It maintains tissue homeostasis  
(c) It causes uncontrolled cell growth      (d) It destroys chromosomes

**PART - B (5 X 5 = 25 Marks)**

**Answer ALL Questions choosing either (a) or (b).  
Answer should not exceed 250 words.**

11. (a) Enumerate principles of light microscope.

**(OR)**

- (b) Explain vital stains used in cell biology.

12. (a) Differentiate plant and animal cell ultrastructure with neat diagram.

**(OR)**

- (b) Explain the cytoplasmic inclusions with their functions.

13. (a) Describe the structure and functions of mitochondria.

**(OR)**

(b) Portray the structure and functions of Golgi complex.

14. (a) Describe the structure of nucleolus.

**(OR)**

(b) Differentiate heterochromatin and euchromatin with neat diagram.

15. (a) Explain the concept of Ageing of cells.

**(OR)**

(b) List out the characteristics of cancer cells.

**PART - C (5 X 8 = 40 Marks)**

**Answer ALL Questions choosing either (a) or (b).**

**Answer should not exceed 500 words.**

16. (a) Describe the techniques of homogenization and centrifugation.

**(OR)**

(b) Explain the principle and types of phase contrast microscopy.

17. (a) Explain the ultrastructure of a bacterial cell with diagram.

**(OR)**

(b) Explain the ultrastructure of a virus with diagram.

18. (a) Describe the structure and function of endoplasmic reticulum.

**(OR)**

(b) Explain the fluid mosaic model of plasma membrane.

19. (a) Explain the mechanism of DNA replication.

**(OR)**

(b) Write an essay on protein synthesis.

20. (a) Describe the stages of mitosis with diagrams.

**(OR)**

(b) Describe the theories on carcinogenesis.