

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**FIRST SEMESTER – **APRIL 2023****UPB 1501 – CELL BIOLOGY AND EVOLUTION**

Date: 06-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A**Answer ALL the Questions****20 marks****1. Choose the correct answer (5 x 1 = 5)**

a) In bright field microscope, the light intensity is controlled by
i) Lamp ii) Objective lens iii) Diaphragm iv) Slits

K1 CO1

b) The 8-smaller subunits of RUBISCO is synthesized from
i) Chloroplast ii) Nucleus iii) Plasma membrane iv) Mitochondria

K1 CO1

c) The number of nucleoprotein classes reported in eukaryotic nucleus is
i) 4 ii) 5 iii) 6 iv) 8

K1 CO1

d) Reduction of chromosome number is takes place during
i) Prophase-I ii) Metaphase-I iii) Anaphase-I iv) Telophase-I

K1 CO1

e) Mutation theory was proposed by
i) Linnaeus ii) Lamarck iii) Hugo de Vries iv) Darwin

K1 CO1

2. Complete the following sentences (5 x 1 = 5)

a) Eukaryotic cell has nucleus, but in prokaryotic it is called as -----.

K1 CO1

b) The smaller and larger sub units of a ribosome held together by the element ----.

K1 CO1

c) The highest number of chromosomes in plants is reported in -----.

K1 CO1

d) Programmed cell death is otherwise known as -----.

K1 CO1

e) Survival of the fittest is explained in the theory of -----.

K1 CO1

3. Answer the following, each within 50 words (5 x 2 = 10)

a) Define resolving power of a microscope.

K2 CO1

b) Comment of dictyosomes.

K2 CO1

c) Give the structure of nucleosome.

K2 CO1

d) Mention the significances of synaptonemal complex.

K2 CO1

e) Comment on the theory of natural selection.

K2 CO1

SECTION B

Answer any TWO of the following, each within 500 words. Draw diagrams / flowchart

wherever necessary.

(2 x 10 = 20 marks)

| | | | |
|----|--|----|-----|
| 4. | Analyse on the components of dark field microscope. | K3 | CO2 |
| 5. | Describe the organization of endoplasmic reticulum. | K3 | CO2 |
| 6. | Elaborate on the various stages of cell cycle. | K3 | CO2 |
| 7. | Explain the theory proposed by Darwin with examples. | K3 | CO2 |

SECTION C

Answer any TWO of the following, each within 500 words. Draw diagrams / flowchart

wherever necessary.

(2 x 10 = 20 marks)

| | | | |
|-----|--|----|-----|
| 8. | Chart out the types of ergostic substances and describe them. | K4 | CO3 |
| 9. | Write short notes on the ultrastructure of mitochondria and its functions. | K4 | CO3 |
| 10. | Narrate the mechanism of cell division in vegetative cells. | K4 | CO3 |
| 11. | Substantiate on the theory of organic evolution. | K4 | CO3 |

SECTION D

Answer any ONE of the following, within 1000 words. Draw diagrams / flowchart

wherever necessary.

(1 x 20 = 20 marks)

| | | | |
|-----|---|----|-----|
| 12. | Compare the components and applications of TEM and SEM. | K5 | CO4 |
| 13. | Evaluate the ultra-structure of a eukaryotic cell wall. | K5 | CO4 |

SECTION E

Answer any ONE of the following, within 1000 words. Draw diagrams / flowchart

wherever necessary.

(1 x 20 = 20 marks)

| | | | |
|-----|---|----|-----|
| 14. | Compile and illustrate the molecular organization of chromosome. | K6 | CO5 |
| 15. | Summarize the details on the sub stages of Meiosis-I with diagrams. | K6 | CO5 |
