



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 - K1 (CO1)

Answer ALL the Questions

(10 x 1 = 10)

1. Fill in the blanks

- a) Eukaryotic cell has nucleus, but in prokaryotic it is called as -----.
- b) The smaller and larger sub units of a ribosome held together by the element ----.
- c) The highest number of chromosomes in plants is reported in -----.
- d) Programmed cell death is otherwise known as -----.
- e) Survival of the fittest is explained in the theory of -----.

2. State whether the following statements are TRUE or FALSE

- a) Prokaryotes possess a definite nuclear membrane.
- b) Lysosomes are referred to as suicidal bags of the cell.
- c) Centromere connects the two arms of the chromosomes.
- d) Mitosis is otherwise known as reduction division.
- e) With time a single species can change and become another species.

SECTION A - K2 (CO1)

Answer ALL the Questions
10)

(10 x 1 =

3. Choose the correct answer

- a) In bright field microscope, the light intensity is controlled by
i) Lamp ii) Objective lens iii) Diaphragm iv) Slits
- b) The 8-smaller subunits of RUBISCO is synthesized from
i) Chloroplast ii) Nucleus iii) Plasma membrane iv) Mitochondria
- c) The number of nucleoprotein classes reported in eukaryotic nucleus is
i) 4 ii) 5 iii) 6 iv) 8
- d) Reduction of chromosome number is takes place during
i) Prophase-I ii) Metaphase-I iii) Anaphase-I iv) Telophase-I
- e) Mutation theory was proposed by
i) Linnaeus ii) Lamarck iii) Hugo de Vries iv) Darwin

4. Answer the following, each in about 50 words

- a) Define resolving power of a microscope.
- b) Comment of dictyosomes.
- c) Give the structure of nucleosome.
- d) Mention the significances of synaptonemal complex.
- e) Comment on the theory of natural selection..

SECTION B - K3 (CO2)

Answer any TWO of the following in 500 words

(2 x 10 =

	20) Draw diagrams / flowcharts wherever necessary	
5.	Analyse on the components of dark field microscope.	
6.	Describe the organization of endoplasmic reticulum.	
7.	Elaborate on the various stages of cell cycle.	
8.	Explain the theory proposed by Darwin with examples.	
SECTION C – K4 (CO3)		
	Answer any TWO of the following in 500 words 20) Draw diagrams / flowcharts wherever necessary	(2 x 10 =
9.	Chart out the types of ergastic substances and describe them.	
10.	Write short notes on the ultrastructure of mitochondria and its functions.	
11.	Narrate the mechanism of cell division in vegetative cells.	
12.	Substantiate on the theory of organic evolution.	
SECTION D – K5 (CO4)		
	Answer any ONE of the following in 1000 words 20) Draw diagrams / flowcharts wherever necessary	(1 x 20 =
13.	Compare the components and applications of TEM and SEM.	
14.	Evaluate the ultra-structure of a eukaryotic cell wall.	
SECTION E – K6 (CO5)		
	Answer any ONE of the following in 1000 words 20) Draw diagrams / flowcharts wherever necessary	(1 x 20 =
15.	Compile and illustrate the molecular organization of chromosome.	
16.	Summarize the details on the sub stages of Meiosis-I with diagrams.	

\$\$\$\$\$\$