LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2022**

UPB 1501 – CELL BIOLOGY AND EVOLUTION

Date: 24-11-2022 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)	The lamp used in fluorescent microscope is i) Deuterium ii) UV iii) Tungsten iv) Neon	K1	CO1
b)	Ribosomes are derived from i) Nucleolus ii) Nucleus iii) Chromatid iv) Chromatin	K1	CO1
c)	The puffs of lamp brush chromosome are nothing but the extension of i) DNA ii) Nucleoprotein iii) mRNA iv) tRNA	K1	CO1
d)	Micro nuclei and multinuclear abnormalities are seen during i) Prophase ii) Metaphase iii) Anaphase iv) Telophase	K1	CO1
e)	Ostrich wings becoming vestigial is an example for the theory of i) Lamarckism ii) Darwinism iii) Mutation theory iv) Speciation	K1	CO1
2.	**Complete the following sentences**		**(5 x 1 = 5)**
a)	Electron beam for TEM or SEM is produced by ----------.	K1	CO1
b)	Plasma membrane connections between 2 cells are called as -------	K1	CO1
c)	Chromosome has 2 arms, namely ------- arm and --------arm.	K1	CO1
d)	Chiasma formation initiates during the ---------- stage of Prophase-I.	K1	CO1
e)	---------- occurs when members of a population become geographically isolated from one another.	K1	CO1
3.	**Answer the following, each within 50 words**		**(5 x 2 = 10)**
a)	Highlight the phase difference occur in phase contrast microscope.	K2	CO1
b)	Mention the components of endoplasmic reticulum.	K2	CO1
c)	Give the applications of karyotype.	K2	CO1
d)	Write notes on chromosomal non-disjunctions.	K2	CO1
e)	Comment on the spontaneous theory of evolution.	K2	CO1
	SECTION - B		
Answer any TWO of the following, each within 500 words. Draw diagrams / flowchart wherever necessary.			**(2 x 10 = 20)**

4.	Analyse the components of fluorescent microscope.	K3	CO2
5.	Describe the organization of plasma membrane according to fluid mosaic model.	K3	CO2
6.	Elaborate on the various stages of cell cycle.	K3	CO2
7.	Explain the theory proposed by Hugo De Vries 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)		
8.	Tabulate the differences between prokaryotic and eukaryotic cell.	K4	CO3
9.	Describe the ultrastructure of ribosomes and its functions.	K4	CO3
10.	Give a detailed account on various mitotic abnormalities.	K4	CO3
11.	Substantiate on the theory of molecular evolution.	K4	CO3
	SECTION - D		
	Answer any ONE of the following, each within 1000 words. Draw diagrams / flowchart wherever necessary. (1 x 20 = 20)		
12.	Correlate on the components and applications of phase contrast microscope and bright field microscope.	K5	CO4
13.	Elaborate the ultra-structure of a chloroplast. Highlight the functions.	K5	CO4
	SECTION - E		
	Answer any ONE of the following, each within 1000 words. Draw diagrams / flowchart wherever necessary. (1 x 20 = 20)		
14.	Consolidate the events in the sub stages of Meiosis - I.	K6	CO5
15.	Summarize the details on the Speciation and isolating mechanisms.	K6	CO5

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