LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **BIOTECHNOLOGY**

SECOND SEMESTER – **APRIL 2023**

PBT2ME01 – CANCER BIOLOGY

Date: 10-05-2023 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

	SECTION A – K1 (CO1)	
	Answer ALL the questions	**(5 x 1 = 5)**
1.	**Choose the best option**	
a)	Benign tumours are i. fast growing and invasive ii. encapsulated and metastatic iii. slow growing iv. always painless	
b)	Mesothelioma is associated with exposure to i. Asbestos ii. Ethidium bromide iii. X-rays iv. Bromine	
c)	The P53 gene is a i. Protooncogene ii. Oncogene iii. Tumour suppressor gene iv. Metastatic promoter gene	
d)	Polyps are associated with i. Lung cancer ii. Liver cancer iii. Breast cancer iv. Colon cancer	
e)	Which of the following is used to treat thyroid cancer? i. I-131 ii. T-31 iii. H-3 iv. CA-125	
	SECTION A – K2 (CO1)	
	Answer ALL the questions	**(5 x 1 = 5)**
2.	**Answer in one or two sentences**	
a)	Diagrammatically represent the progression of cancer.	
b)	Relate oxidative stress to cancer.	
c)	Highlight a key difference between tumour suppressor gene mutation and proto-oncogene mutation.	
d)	List any four risk factors of lung cancer.	
e)	What is photodynamic therapy?	
	SECTION B – K3 (CO2)	
	Answer any THREE of the following	**(3 x 10 = 30)**
3.	Outline the biological cascade of metastasis.	

4.	Relate diethylstilbestrol to tumorigenesis.
5.	Write a note on Li–Fraumeni syndrome.
6.	Classify breast cancer based on ER and HER2 receptors.
7.	Explain CART-T cell therapy and its side effects.
	SECTION C – K4 (CO3)
	Answer any TWO of the following **(2 x 12.5 = 25)**
8.	Differentiate between benign and malignant tumours.
9.	How are cancer stem cells significant in the treatment of cancer?
10.	Classify the stages and grades of cancer.
11.	Robin and Lucia were both carriers of *Xeroderma pigmentosum* (XP). What is a probability of their daughter Andrea being affected with XP?
	SECTION D – K5 (CO4)
	Answer any ONE of the following **(1 x 15 = 15)**
12.	Review the hallmarks of cancer.
13.	Discuss the tyrosine kinase pathway in the context of cancer biology.
	SECTION E – K6 (CO5)
	Answer any ONE of the following **(1 x 20 = 20)**
14.	Compile risk factors and recommend screening and treatment strategies for breast cancer.
15.	*Biotechnology has transformed cancer patient care.* Elucidate.

$$$$$$$