BT. 57

Reg.No.:								

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 9023

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – AUG. / SEP. 2023
Second Semester
Biotechnology
U19BT201 – CELL BIOLOGY
(Regulation 2019)

Time: Three Hours Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define Cell theory.	2	K1	CO1
2.	Write a short note on extracellular matrix.	2	K2	CO1
3.	List the important molecules that control the cell cycle.	2	K2	CO2
4.	Relate the term Apoptosis in cell cycle.	2	K1	CO2
5.	Differentiate between Active transport and Passive transport.	2	K2	CO3
6.	State the functions of nuclear receptors and give an example.	2	K2	CO3
7.	How do agonists differ from antagonists?	2	K2	CO4
8.	Recall the role of second messengers in cell signaling.	2	K1	CO4
9.	Spot the importance of immunochemistry in cell culture.	2	K2	CO5
10.	Define the term Passaging and infer its significance in cell culture.	2	K2	CO5

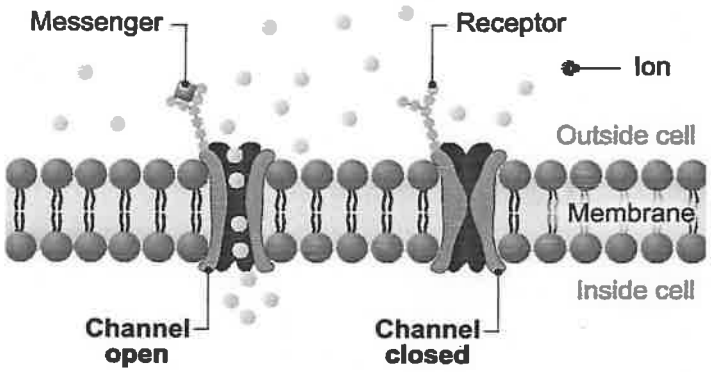
PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	Compare and contrast the salient features of Prokaryotic and Eukaryotic cells.	6	K2	CO1
		ii.	Illustrate the role of protein in membrane organization.	7	K2	
			(OR)			
	b)		Enlist the different cytoskeletal organelles and describe their structure and functions with clear diagrams.	13	K2	CO1
12.	a)	i.	Narrate the series of events in mitotic cell division with neat illustrations.	8	K2	CO2
		ii.	Identify the major checkpoints in the cell cycle and brief on it.	5	K3	
			(OR)			
	b)	i.	Illustrate how cell cycle is related to cancer.	8	K2	CO2
		ii.	Explain the role of growth hormone.	5	K3	
13.	a)		Exemplify the process of entry of viruses and toxins into the cells.	13	K2	CO3
			(OR)			
	b)		Explicate the principle of various techniques used to quantitate and characterize the receptors.	13	K2	CO3
14.	a)		Schematically explain the mechanism of action of neurotransmitters.	13	K2	CO4
			(OR)			
	b)		Categorize the different models of cell signal amplifications and portray any one in detail.	13	K2	CO4
15.	a)		Classify the different techniques for the propagation of prokaryotic cells and explain each.	13	K2	CO5
			(OR)			
	b)	i.	Reproduce the method of culturing three dimensional cell cultures.	10	K2	CO5
		ii.	Mention the various sources of contamination in cell culture.	3	K2	

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	What is meant by co-transport? Schematically explain the sequence of co-transport mechanism with an example and brief its importance.	15	K2	CO3
		(OR)			
	b)	 Examine the above type of ion channel and describe its Mechanism and function with an example.	15	K4	CO4