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

Question Paper Code: 90037

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – FEB. 2025

First Semester

Biotechnology

P23BTE08 – PHARMACEUTICAL TECHNOLOGY

(Regulation 2023)

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.	Name any four routes of administration of anti-cancer drugs.	2	K2	CO1
2.	Write about Lipinski “rule of 5”.	2	K1	CO1
3.	Write any three factors affecting drug absorption in the intestine.	2	K2	CO2
4.	What are phase I reactions?	2	K2	CO2
5.	Name any three docking algorithms used for macromolecule-ligand docking.	2	K1	CO3
6.	Write a note on AUTODOCK.	2	K1	CO3
7.	Schedule-Y- Explain.	2	K2	CO4
8.	Enumerate the stages of drug development.	2	K2	CO4
9.	Name the regulatory bodies involved in the regulation of drug approvals in India.	2	K1	CO5
10.	Detail the critical process involved in equipment calibration.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Discuss the various approaches for the drug discovery process with suitable examples.	13	K2	CO1
	(OR)			
b)	Write a note on drug targets.	5	K2	CO1
	How will you develop a drug against a cell membrane lipid?	8	K4	CO1
12. a)	Construct a note “biotransformation of drugs”.	13	K2	CO2
	(OR)			
b)	Illustrate controlled drug release with suitable examples.	13	K3	CO2
13. a)	Build a detailed note on molecular dynamic simulations.	13	K2	CO3
	(OR)			
b)	Define the principles of macromolecule-ligand docking.	8	K2	CO3
	How they will be useful for designing a novel drug against a virus.	5	K4	CO3
14. a)	Develop a detailed note on pre-clinical studies. Explain the advantages and disadvantages of each pre-clinical model.	13	K3	CO4
	(OR)			
b)	Define the laws and regulations regarding the use of animals in research in India.	13	K4	CO4
15. a)	Outline on analytical & process validation.	13	K2	CO5
	(OR)			
b)	Describe the U.S. FDA regulations governing new drug development.	13	K4	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Discuss the detailed process of development of a small molecule drug against HIV protease with a flow diagram.	15	K4	CO4
	(OR)			
b)	Elaborate the development of nanocarriers for the effective delivery of toxic anti-cancer drugs. Discuss the advantages of nanocarriers over conventional systems for the effective delivery of anti-cancer drugs.	7 8	K4	CO2