Reg. No. : | | | | | | | | | | |

Question Paper Code: 98D62

B.E./B.Tech. DEGREE EXAMINATION, MAY 2022

One credit

Biotechnology

19UBT862- Computational Reckoning of Bioprocess
(Regulations 2019)

(common to all branches)

Duration: Three hours Maximum: 100 Marks

Answer All Questions

PART A - (9 x 2 = 18 Marks)

1.	Illustrate the classification of optimization methods.	CO1- U
2.	What is optimization in biotechnology?	CO1- U
3.	What is full factorial design and its importance?	CO1- U
4.	What are DOE methods?	CO1- U
5.	What are the steps involved in designing the experiment?	CO1- U
6.	List out the various designs available in design expert software to design an experiment.	CO1- U
7.	Write down the advantages of mathematical modelling	CO1- U
8.	List out the various options available in design expert to develop a mathematical model.	CO1- U
9.	Illustrate the classification of optimization methods.	CO1- U

PART – B (2 x 16= 32 Marks)

10.	(a)	Rifaz has to design an experiment to produce citric acid for which he has chosen some variables like glucose concentration, yeast extract concentration, amount of NaCl, Inoculum size, magnesium sulphate. Help him to use the respective tool and guide him with the flow path for using the tool and analyzing the results.	CO5-App	(16)

Or

	(b)	Manaz and Venkatesh have decided to optimize curd production of a pilot batch of 100 lites. For that they have found lactose concentration (30 to 40 kg), ammonia concentration (10 – 20 kg) and Inoculum size (1.5 – 2 l) as the influencing factors. Using the above information guide them with the flow path to use the tool for finding the optimized values and analyzing the results of it.	CO5-App	(16)
11.	(a)	Stark industries have short listed Steve and Carter for the role of executive manager for the vinegar production and instructed them that to optimize the production efficiently will be promoted. Now help them to prepare a design for finding the impacting creating variables and their values.	CO5-App	(16)
		Or		
	(b)	The pond in your locality is highly contaminated and has become not fit for animal consumption. Being a biotechnologist completely monitor the pond and identify the factors responsible for the contamination and list it out. Now design the complete procedure and experiment table to identify the most influencing factors which has high impact on the contamination process and write a detailed report on it.	CO5-App	(16)