Total number of printed pages: 2 **Programme (UG)/8th/UFET801**

2023

PLANT DESIGN AND PROJECT ENGINEERING

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Give a detail of the situations when the need of a plant design arises.		5
	b)	Define pre-feasibility study. State the purpose and the various elements of a pre-feasibility study.		2+3+10=15
2.	a)	Describe the features of walls, doors, windows, ceiling in a processing hall.		3×4=12
	b)	Write short notes (any 2)		2×4=8
		i)	Social cost benefit analysis	
		ii)	Design features of equipment	
		iii)	Breakeven analysis	
		iv)	Process utilities	
3.	a)	What is a plant layout? Explain the essential objectives of an effective plant layout.		2+6=8
	b)	Enlist some advantages of an effective plant layout in terms of costs.		4
	c)	Describe the various flow patterns of a plant layout in a food processing hall alongside their advantage and disadvantage.		8
4.	Draw a plant layout of any food industry of your interest with proper labelling and directions.			20
5.	a)	Discuss in detail the types of capitals required in any processing venture.		12
	b)	What is meant by depreciation? What are the reasons for depreciation? Explain the two methods of calculating depreciation.		2+2+4=8
6.	a)	What is meant by minimum acceptable rate of return? Write down the various level of risk, investment description and minimum acceptable rate of return.		1+10=11
	b)	Enterprise has started with an annual fixed cost of Rs. 2,00,000.00 and a		4

		variable cost of Rs. 32.00 per unit of production. i) What should the product's selling price be in this situation if only 12000 units are expected to be sold to break even? ii) Estimate the profit if the variable cost and selling price is increased by 5% and 8% respectively to sell 12000 units.	
	c)	A bakery unit has been initiated with an annual fixed costs as 1,00,000.00 and variable cost per unit of production as Rs. 33.00. (i) If only 5000 units are expected to sell in the first year what should be the selling price of product to make 25% profit in the same year? (ii) If another 3000 units production per year has to be added to 5000 units {as in above question (i)} and 25% profit is expected again, what would be the selling price per unit?	5
7.	a)	Describe the general guidelines for choosing a plant location.	10
	b)	Describe any two methods (with example) to select the location for a plant.	10