Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER VII(OLD) • EXAMINATION – WINTER 2017

Subject Code: 170503 **Date: 10/11 /2017**
Subject Name: Plant Design and Project Engineering
Time: 10:30 AM TO 01:00 PM **Total Marks: 70**
Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1		Answer the following:	**07**
	1	Explain the role of a cost engineer.	**1**
	2	Explain six tenths factor rule.	**1**
	3	What is 'capitalized engineering'?	**1**
	4	What are scale models?	**1**
	5	What is salvage value?	**1**
	6	What is a preliminary or quick estimate design?	**1**
	7	Explain 'pyrolysis' as a solid waste disposal option.	**1**
	(b)	Discuss the factors to be considered for ideally locating a fertilizer industry in Gujarat.	**07**
Q.2	**(a)**	Sketch plant layout of any (Chemical) industry that you have visited. As a chemical engineer, justify the same.	**07**
	(b)	Discuss in detail design information from literature.	**07**
		OR	
	(b)	Discuss types of flow diagrams in detail.	**07**
Q.3	**(a)**	Discuss community factors and their significance in plant location	**07**
	(b)	Discuss selection criteria of size reduction equipments	**07**
		OR	
Q.3	**(a)**	Write the specification sheet for a heat exchanger.	**07**
	(b)	Discuss noise pollution and control in industry.	**07**
Q.4	**(a)**	Discuss causes of depreciation. Explain in brief (i) Straight-line method and (ii) Sinking Fund method for calculating depreciation.	**07**
	(b)	What is optimum design? Explain "breakeven chart" for production schedule and its significance for optimum analysis.	**07**
		OR	
Q.4	**(a)**	List cost indices. Discuss any two in detail.	**07**
	(b)	What is single unit and group depreciation? Evaluate depreciation methods.	**07**
Q.5	**(a)**	What is replacement? Discuss profitability evaluation for the same.	**07**
	(b)	What is a pilot plant? Discuss the subsequent development stages of semi-commercial/commercial production	**07**
		OR	
Q.5	**(a)**	Compare and contrast PERT and CPM Project management techniques.	**07**
	(b)	In comparison of different processes, explain (i)'Technical factors' and (ii)' Time factor'	**07**

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Marking Scheme

Q		Description	Marks
Q.1	**(a)**	Answer the following:	**07**
	1	Explain the role of a cost engineer.	**1**
	2	Explain six tenths factor rule.	**1**
	3	What is 'capitalized engineering'?	**1**
	4	What are scale models?	**1**
	5	What is salvage value?	**1**
	6	What is a preliminary or quick estimate design?	**1**
	7	Explain 'pyrolysis' as a solid waste disposal option.	**1**
	(b)	Discuss the factors to be considered for ideally locating a fertilizer industry in Gujarat.	**07**
Q.2	**(a)**	Sketch plant layout of any (Chemical) industry that you have visited. As a chemical engineer, justify the same.	**02+05**
	(b)	Discuss in detail design information from literature.	**07**
		OR	
	(b)	Discuss types of flow diagrams in detail.	**07**
Q.3	**(a)**	Discuss community factors and their significance in plant location	**04+03**
	(b)	Discuss selection criteria of size reduction equipments	**07**
		OR	
Q.3	**(a)**	Write the specification sheet for a heat exchanger.	**07**
	(b)	Discuss noise pollution and control in industry.	**03+04**
Q.4	**(a)**	Discuss causes of depreciation. Explain in brief (i) Straight-line method and (ii) Sinking Fund method for calculating depreciation.	**03+02+02**
	(b)	What is optimum design? Explain "breakeven chart" for production schedule and its significance for optimum analysis.	**02+03+02**
		OR	
Q.4	**(a)**	List cost indices. Discuss any two in detail.	**03+04**
	(b)	What is single unit and group depreciation? Evaluate depreciation methods.	**04+03**
Q.5	**(a)**	What is replacement? Discuss profitability evaluation for the same.	**03+04**
	(b)	What is a pilot plant? Discuss the subsequent development stages of semi-commercial/commercial production	**02+05**
		OR	
Q.5	**(a)**	Compare and contrast PERT and CPM Project management techniques.	**07**
	(b)	In comparison of different processes, explain (i)'Technical factors' and (ii)' Time factor'	**04+03**

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