GUJARAT TECHNOLOGICAL UNIVERSITY ME SEMESTER-IV EXAMINATION – SUMMER 2015

Subject Code: 744601 Date: 01/05/ Subject Name: Productivity Engineering & Management				
Tir	Time:2:30 pm to 5:00 pm Total Marks:			
Inst	ructio 1. 2. 3.	ns: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a)	List different models for productivity measurement. Explain the assumptions of any two models.	07	
	(b)	 A manufacturing unit wishes to ascertain its corporate productivity through following model for the financial year just ended. Corporate Productivity Measure (CPM) = V/ (L+D+T) Whereí V = Value added (Net sales ó Purchased inputs) L = Total labor costs (direct and indirect) D = Accounting depreciation on plant and equipment plus leasing payments T = Inventory in the transformation process The firm has collected following data for the calculation. 1) Net annual sale = Rs. 150 lacs. 2) Factory Overheads = Rs. 10 lacs. 3) Cost of production = Rs. 50 lacs. 4) Operating days = 300 (with one 8 hours shift per day) 5) Inventory carrying cost = Rs. 2 lacs. 6) Plant and machinery used = 3 lathe machines (purchased at Rs. 3.5 lacs each), 2 milling machines (one purchased brand new at Rs. 3 lacs. and another second hand costing Rs. 1 lac.) and one heat treatment unit costing 4.25 lacs. Are the data collected sufficient to calculate the same. If no, then list out missing data 	07	
Q.2	(a)	What are the common difficulties one encounters in productivity measurement of	07	
	(b)	What are the similarities between the Performance Objectives ó Productivity (PO-P) Model and Management by Objectives (MBO) approach?	07	
	(b)	List typical Key Performance Areas (KPAs) and their related Performance Objectives for marketing and HRD sub-systems.	07	
Q.3	(a)	Comprehensively explain strengths and limitations of large scale industries with respect to productivity measurement.	07	
	(b)	What are the needs of productivity measurement in service sector?	07	
Q.3	(a) (b)	Explain the difficulties in measuring productivity of service sectors and suggest counter measures for the same. If Productivity (PO-P) Model is to be used for measuring the performance of a degree engineering college, then list the Key Performance Areas (KPAs) and	07 07	

their related Performance Objectives for the same with brief justification.

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- (a) Explain the concept of Business process re-engineering. What is the role of **Q.4** 07 technology in reengineering?
 - (b) Explain the characteristics of BPR which facilitates TQM. What is the need of 07 BPR?

OR

- (a) Explain the principles of BPR and give an example of productivity improvement 07 **Q.4** using BPR methodology.
 - (b) Discuss in detail the myth about BPR created by popular literature. 07
- Q.5 (a) Explain total productivity model given by Sumanth. Compare this model with 07 American productivity centre model.
 - (b) A company has introduced a process improvement that reduces processing time 07 for each unit, so that output is increased by 20% with less material, but one additional worker required. Under the old process, five workers could produce 50 units per hour. Labor costs are \$15/hour. Material input was previously \$20/unit. For the new process, material is now \$10/unit. Overhead is charged at 2 times direct labor cost. Finished units sell for \$40 each. What increase in productivity is associated with the process improvement?

Q.5	(a)	Explain the concept of green productivity with suitable example.	07
	(b)	Explain the various types of BPR methodologies.	07

(b) Explain the various types of BPR methodologies.
