VIT
Vellore Institute of Technology

SCHOOL OF MECHANICAL ENGINEERING

Continuous Assessment Test – I

Winter Semester 2019-2020

Programme Name & Branch: B.Tech - BME, BPI

F2

Course Name & Code: Industrial Engineering and Management – MEE1014

Class Number: VL2019205002427 **Slot:** F2+TF2 **Exam Duration:** 90 mins **Maximum Marks:** 50

Answer **ALL** Questions

Section – A (5 x 10 = 50 Marks)

S.No.	Question	Course Outcome (CO)
1.	The Jharkhand Steels Ltd., is a major producer of steel. Management estimates for the company's steel is given by the equation; $Qs = 5000 - 1000Ps + 0.10I + 100Pa$ Where, Qs = steel demand in thousands of tons per year. Ps = Price of steel in Rs. per Kgs, I = Income per capita Pa = Price of aluminium in Rs. Per Kgs. Initially, the price of steel is Rs 40 per Kgs. Income per capita is Rs.20000, and the price of aluminium is Rs.30 per Kgs (a) How much steel will be demanded at the initial prices and income? (b) What is the point income elasticity at the initial values? (c) What is the point cross elasticity between steel and aluminium? Are steel and aluminium substitutes or complements? (d) If the objective is to maintain the quantity of steel demanded as computed in Part (a), What reduction in steel prices will be necessary to compensate for a Rs.5 reduction in the price of aluminium? **(10 Marks)**	CO1
2	The number of daily calls in the month of august 2018 from various banks for issuing credit cards has been recorded as follows:	CO1

Days	1	2	3	4	5	6	7	8
Number of Daily calls	92	127	103	165	132	111	174	97

SCAN ME

	(i) Prepare a 3-period moving average forecast for the data (ii) Prepare a 3-period weighted moving average forecast using weights of 0.5, 0.3 and 0.2 in the order of recent to older periods. (iii) Prepare exponential smoothen forecast with α =0.1 and assume F1=90. (iv) Calculate the absolute errors and mean absolute deviation for the above forecasts. Which of the forecasting methods is the best? (20 Marks)	
3.	(a) Distinguish between Production and productivity. Name four areas that significant to improving labour productivity? (5 Marks) (b) What are reasons for productivity is difficult to improve in the service sector? (5 Marks)	CO3
4.	ABC Bank employs three loan officers, each working eight hours per day. Each officer processes an average of five loans per day. The bank's payroll cost for the officers is Rs.820 per day, and there is a daily overhead expense of Rs.500. a. Compute the labour productivity. b. Compute the multifactor productivity, using loans per dollar cost as the measure. The bank is considering the purchase of new computer software for the loan operation. The software will enable each loan officer to process eight loans per day, although the overhead expense will increase to Rs.550. c. Compute the new labor productivity. d. Compute the new multifactor productivity. e. Should the bank proceed with the purchase of the new software? Explain. (10 Marks)	CO3