

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)

DEPARTMENT OF MECHANICAL AND PRODUCTION ENGINEERING

Mid-Semester Examination

Winter Semester, A.Y. 2022-2023

Course No. IPE 4725

Time : 1½ hours

Course Title: Supply Chain Management

Full Marks : 75

Answer all 3 (Three) questions. Marks in the margin indicate the full marks. CO/PO are mentioned.

- 1 a) Pointing to the scope of the present-day supply chain (SC) requirement, elaborate the relevance of an SCM course for an Industrial and Production Engineering (IPE) graduate. 10
CO1
PO8
- b) Suppose you are planning to prepare a journal article on "Systems approach to analyzing supply chains and improving their performance". State the sections you must include the article to make it not rejected by the journal publisher. Cite the key contents/points you are going to include in each section. 15
CO1
PO10

- 2 a) Explain how demand forecasting works in supply chain management. 5
- b) Suppose your company is publishing a book on SCM in Bangladesh for IPE and business students. Knowing the premises that IPE and business programmes are not yet settled but there is a historical growth in last one decade, figure out the process and methods you should apply to come up with accurate demand forecast for five years until 2028. 7
PO9
- c) A manufacturer must forecast its laptop demand as accurately as possible. Its management wants to be able to forecast the demand for laptops during the next month. From the records of previous orders, management has accumulated the following data for the past 9 months: 13
All
CO2
PO5

Month	1	2	3	4	5	6	7	8	9
No. Ordered	1,200	900	1,000	750	1,100	550	750	1,300	1,100

- i. Compute the monthly demand forecast for periods 6 through 10 using a 5-month moving average.
- ii. Compute the monthly demand forecast for periods 6 through 10 using a 5-month weighted moving average. Use weights of 0.25, 0.30, 0.20, and 0.25, with the order of heavier weights in the more recent months.
- iii. Compute the mean absolute deviation for periods 6 through 9 for the above methods used. Which method would you use to forecast demand for period 10?

- 3 a) Distinguish between backward and forward integrations in SCM. Clarify their distinctiveness as much as possible to your chief (executive) engineer (CEE). 5
- b) In-course of purchasing raw materials, components, etc. through potential suppliers, you must try to win without defeating them through negotiation. Vividly explain your preparedness before being at the negotiation table. 10
- c) Now, suppose you must procure certain parts from one of five potential suppliers. Describe the procurement process and workflow you are going to apply. You can show the steps through figures along with a brief explanation of each of them. 10
All
CO1
PO9