Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER B. TECH (MECHANICAL & IP ENGG.) END SEMESTER EXAMINATIONS, NOVEMBER 2018

SUBJECT: SUPPLY CHAIN AND LOGISTICS MANAGEMENT [MME 4034]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data if any, may be suitably assumed.

1A. Discuss the design and planning phases of supply chain decision making. **(05)**

1B. Discuss the "*Externally Integrated Business Function Era*" of supply chain management evolution. **(03)**

1C. Explain the push and pull view of supply chain process with a suitable example. **(02)**

2A. Diagrammatically represent the framework for network design in supply chain management. **(05)**

2B. Write a short note on the customer service assessment factors influencing distribution network design with a suitable example. **(03)**

2C. Write a short note with suitable real time examples for server and outpost facilities. **(02)**

3A. Solve the following transportation problem using LC and NWC methods for the initial feasible solution. Find the difference in amount if a wrong choice is made. **(05)**

	P	*Q*	*R*	*S*	*Supply*
A	2	3	11	7	6
B	1	0	6	1	1
C	5	8	15	9	10
Demand	7	5	3	2	

3B. Assess the model of shipping via distribution center with milk run in comparison to transportation network design model of direct shipping with milk-run. **(03)**

3C. List the four carrier's factor in decision making. **(02)**

4A. Discuss about the EDI and also explain its components. **(05)**

4B. Assess the advantages of a single vendor model in comparison to the multiple sourcing model **(03)**

4C. List and explain the major four activities associated with sourcing and vendor management. **(02)**

5A. M. Dingo Pvt. Ltd. has identified two customer segments for its production capacity having the demand pattern as $5000 - 20\mathrm{p}_1$ and $5000 - 40\mathrm{p}_2$. The production cost per unit is ₹10. Calculate the following: **(05)**

i. Price to be charged by the manufacturer for each segment.
ii. Single price over both segments.
iii. Increase in the profit provided by the differential pricing.

Also formulate the pricing model if the capacity is limited to 3500 units.

5B. A retailer has purchased 650 bottles of cod liver oil, which lasts for 3 months, at a cost of ₹ 149 each to be sold in 3 months. The retailer has forecasted the demand in each of the 3 months to $234 - \mathrm{p}_{1,}$ $154 - 2.5\mathrm{p}_1$ and $292 - 5.3\mathrm{p}_1$ respectively. Formulate the dynamic pricing problem. **(03)**

5C. Solve graphically to maximize the profit (Z): **(02)**

$$Maximize\ Z = 25\,X_1 + 40\,X_2$$

Subjected to:

$$2X_1 + 5X_2 \leq 20$$
$$4X_1 + 2X_2 \leq 24$$
$$X_2 \geq 5$$
$$X_1, X_2 \geq 0$$