K.J. Somaiya Institute of Management Studies and Research.

End Term Examination- Trimester II. (PG FS Batch 2018-20)

Logistics& Supply Chain Management

Time 3 hrs **Date : 14/01/2019** **Marks 50.**

Pls. Note: - Question No. 1 is compulsory and carries 20 marks, attempt any 3 questions from questions 2 to 6 (each carries 10 marks).

1. **Attempt any 4 questions from the 6 below, they are based on the applications of the concepts learned in the course:-**

a) ArcelorMittal's global procurement team aims to ensure they deliver the best possible service and value to their internal customers. In order to do this, the team follows a procurement model that employs the principles of 'total cost of ownership'.

"We use an approach to procurement that involves the development of category-specific strategies, in line with the structure of specific markets. The structure has three levels: global procurement, regional procurement, and local procurement.

Global procurement includes all categories where suppliers are operating on a global level – for example, major mining companies. The regional procurement level is for products and services that are typically provided by regional suppliers, while the local procurement level uses global or regional contracts or sources from local partners."(Accessed from the ArcelorMittal website on 20/12/2016)

Local	Regional	Global
One-time purchases (e.g. Capex)		
Infrastructure & sustaining Capex depending on value threshold		High-value equipment (production equipment, greenfield & brownfield projects)
Recurrent spend		
Ind. Services (waste treatment, fire protection, etc.) Fuel	Scrap and scrap substitutes Rolls Coating and paints Industrial services (water treatment, slag handling, maintenence) Roads & rail logistics MRO, consumables, Oils & greases Packaging Inland water freight Chemicals (glues, detergents,...) Stationary Communications Training	Iron ore Coal/Coke Ocean freight Ferro alloys and Base metals Refractories Energy IT and professional services Telecom Travel, fleet management

What would be the advantages of this organization structure? How does centralized procurement help the company in achieving its "total cost of ownership" principles? (5)

b. You are the Logistics Manager for an E-commerce business start-up, engaged in FMCG business. Your CEO has asked you to come out with a plan with the 2 most appropriate distribution networks to enhance the competitiveness of the organization. Kindly elaborate on your plan, clearly identifying the pros and cons of each network suggested. (5)

c. Tata Starbucks has spent two years steadily growing its footprint in India and making sure the brand experience stays true and strong….Walk into any Starbucks outlet in India and the crowd looks just the same as in any other outlet around the world. People are chatting, working, browsing, in keeping with the coffee chain's premise of being the favourite 'third place' after home and the workplace. In the two years since the India launch in October 2012, the Starbucks footprint has grown to 59 stores across six cities — Mumbai, Delhi National

Capital Region, Bengaluru, Chennai, Pune, and Hyderabad. But, even as it zooms into more Indian cities, the world's largest coffee chain is keeping a steady hand on the throttle to make sure that the Starbucks experience remains consistent and sustainable. (Accessed from the Tata Starbucks website on 20/12/2016)

You are recently appointed as the Head of Purchase, and your CEO has specifically mentioned that sustainability is one of the key result areas for the organization. Please list down why sustainability is so important in the purchasing agenda, and what actions you will be taking to incorporate sustainability into your function. (5)

d. You are the Head of Operations in an automobile manufacturing organization. Your CEO believes that the organization should manufacture a majority of the components going into the end product in-house. What is the analysis you would do, and what advice would you recommend to the CEO. (5)

e. For each of the following programs, processes, certifications, etc. explain how they can be useful in improving supplier relationships and motivating business partners to provide the best possible products and services. (5)

- **a. ISO 9000**
- **b. Total cost of ownership(TCO)**
- **c. Internal supplier certification**
- **d. Supplier development programs**
- **e. Supplier recognition programs**

f) *Flipkart uses a Continuous review model. The inventory stocks are replenished when the inventory levels reach Reorder point (ROP). The company employs first in first out (FIFO) method for its inventory management.*

Please explain graphically what is the meaning of a "Continuous Review Method".

Would you suggest Flipkart go with a Continuous review system or periodic review system? Pls. justify. In case you suggest the Continuous Review, what would be the essential prerequisites and practices for Flipkart's warehousing team.

2 a) Clearly explain the difference between dependent and independent demand with examples. How would the inventory systems for the 2 types vary? Can the same item fall under the

classification of dependent and independent demand item under different circumstances….

2 b) Amazon sells 20,000 units of consumer electronics from Samsung every month. Each unit costs Rs.100 and Amazon has a holding cost of 20 percent. The cost of a purchase order is Rs.4000. What is the optimal size of the order (EOQ) that Amazon should place with Samsung? What would be the annual holding costs, ordering costs and total inventory costs?

With the goal of reducing inventories, Amazon would like to reduce the size of each order it places with Samsung to 2,500 units (allowing it to get four replenishment orders every month. How much should it reduce the fixed cost per order for an order of 2,500 units to be optimal?

3. a) Define the term supply chain management in your own words, what are the benefits of supply chain management? What are the four foundation elements of SCM?

3 b) Define the term logistics and its objectives, what is its importance in organizations. Also, explain in brief various transportation modes, and their advantages and disadvantages.

4 a) Why are production planning and capacity planning important to SCM? Explain the terms Aggregate Production Planning (APP), Master Production Scheduling (MPS), Bill of Materials (BOM) and Material Requirement Planning (MRP), and how are they interrelated?

4 b) Following data is available about actual sales quantities for the past 10 months.

Year	1	2	3	4	5	6	7	8	9	10
Sales	230	220	200	240	230	260	300	240	280	320

Find the forecast for month 11 using three month as well as four-month moving averages. Which of the two forecasts is more reliable on the basis of Mean absolute deviation (MAD) and mean squared error (MSE) criterion.

5 a) Explain lean production and Six Sigma. Why are lean production and Six Sigma so important to successful supply chain management?

5 b) i) Daily demand for tablets at Croma is normally distributed, with a mean of 2,500 and a standard deviation of 500. The tablet supplier takes an average of 7 days to replenish inventory at Croma. Croma is targeting a service level of 92%for its tablet inventory. Evaluate the safety inventory and reorder point in case the standard deviation of the lead time is 5 days.

ii) How would the safety inventory and reorder point change in case Croma wants to increase its service level to 95%?

iii) As part of a Six Sigma program, Croma is working with its supplier to reduce the standard deviation of the lead time to 1 day. Evaluate the safety inventory and reorder point Croma can expect as a result of the initiative.

6. Write Short Notes (any four)

a) Classification of Indian Road transportation vehicles, with examples

b) Role of ERP in the Supply chain

c) ABC Inventory classification

d) Centralised vs. decentralised purchasing

e) Process capability index.

f) The Bullwhip effect.

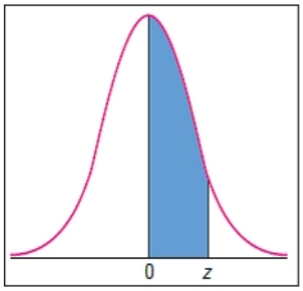

TABLE A Areas of a Standard Normal Distribution (Alternate Version of Appendix I Table 4)

The table entries represent the area under the standard normal curve from 0 to the specified value of z.

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.5	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998
3.6	.4998	.4998	.4998	.4999	.4999	.4999	.4999	.4999	.4999	.4999

For values of z greater than or equal to 3.70, use 0.4999 to approximate the shaded area under the standard normal curve.