Roll No .....

ME-7003 (CBGS)

B.E. VII Semester

Examination, November 2019

Choice Based Grading System (CBGS)

OR and Supply Chain

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Explain the feasibility and optimality conditions in a LPP. 6

   b) Solve the following problem using Simplex method. 8

   Minimize $Z = 8x_1 + 4x_2 + 2x_3$

   Subjected to $4x_1 + 2x_2 + x_3 \leq 8$

   $3x_1 + 2x_3 \leq 10$

   $x_1 + x_2 + x_3 = 4$

   $x_1, x_2, x_3 \geq 0$

2. a) Define the Supply chain management. What are the important drivers of the Supply chain management? 4

   b) Describe the Push/ Pull and cycle views of supply chain processes with suitable example. 4

   c) Explain briefly the efficient and responsive supply chain and describe the impact of demand uncertainty on the supply chain. 6

3. a) Define a Queue and give some applications of Queuing theory. 6

   b) In a bank cheques are cashed at a single teller counter. Customers arrives at the counter in a position manner at an average rate of 25 customers per hour. The teller takes on an average of 2 minute to cash cheque the service time is exponentially distributed. 8

      i) Calculate the Percentage of time the teller is busy.

      ii) Calculate the Average time of a customer is expected to wait.

4. A certain item costs Rs.235 per ton. The monthly requirement is 5 tons and each time the stock is replenished there is a setup cost of Rs.1000. The cost of carrying of inventory has been estimated at 10% of the value of the stock per year. What is the optimal order quantity? 14

5. a) Define the Heuristic and Meta-heuristic algorithms. 4

   b) Indicate the difference between Decision-making under risk and uncertainty in Statistical decision theory. 5

   c) How will you carry out consistency check in an AHP? Take an example and calculate inconsistency ratio. 5

6. a) What is Inventory control? Explain in an industrial undertaking? http://www.rgpvonline.com 4

   b) What is "Just In Time" production? What are its aims? 4

   c) Explain ABC analysis used in inventory control and explain briefly about MRP. 6

7. a) Write Little's Formula. State some applications of theory. 7

   b) Write short notes on following 7

      i) Single Server Model (M/M/1)

      ii) Multiple Server Models (M/M/S)

8. a) Explain the role of Decision making analysis in a business organization and also describe the steps involved in it. 7

   b) Give short notes on the following: 7

      i) Hurwitz criterion for decision making under uncertainty.

      ii) Describe some methods which are useful for decision making under uncertainty. Illustrate each by an example.

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