Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Operations Management **Semester: I**
Programme: MBA LSCM **C.Code: LSCM 7001**
Time: 03 hrs. **Max. Marks: 100**
Instructions: As per sections

SECTION A

S. No.		Marks	CO
	Attempt all questions	**20**	
Q 1	What are your learnings from National cranberry cooperative case study?	**10**	**CO 4,5**
Q 2	What are your learnings from Marriot hotels case study?	**10**	**CO 1,2**

SECTION B

	Attempt any four questions	**20**	
Q3	What do you understand by make to order and build to order?	**5**	**CO 1**
Q4	What is the difference between continuous review system and periodic review system?	**5**	**CO 4**
Q5	What is the different types of facility location techniques?	**5**	**CO 2**
Q6	What are the various qualitative measures of forecasting?	**5**	**CO 3**
Q7	Explain DMAIC and DMADV.	**5**	**CO 6**

SECTION-C

	Attempt all questions	**30**	
Q8	Find the optimal order quantity of a product for which the price breaks are as follows: **Quantity(units)** | **Price per unit(Rs.)** **$0 < Q_1 < 600$** | **10.00** **$600 <= Q_2$** | **9.00** The monthly demand of the product is 300 units, the storage cost is 2 percent of the unit cost and the cost of ordering is Rs. 350 per order.	**10**	**CO 5**
Q9	We have five jobs, each of which must go through two machines in the order BA. Their processing times are given below: Job | 1 | 2 | 3 | 4 | 5	**10**	**CO 3**

	Machine A	20	2	26	6	20		
	Machine B	4	12	14	16	9		

Decide the optimum sequence of processing of jobs in order to minimize the total time required. Also find the total minimum elapsed time.

Q10	A quality characteristic understudy has a manufacturing specification (in cm) of 0.200 ± 0.05. Historical data indicates that if the quality characteristic takes on values larger than 0.25 cm or smaller than 0.15 cm, the product fails and the cost of $85 is incurred. Based on these data, a) Determine the Taguchi Loss function b) Estimate the loss for quality characteristic of 0.195 cm.	**10**	**CO 6**

SECTION-D

	Attempt any two questions	**30**	
Q11	Product X is made from two components, A and B. It takes two A's and one B to make a single product X. Component A is made from three parts C's. Component B is made from two part C's and 5 part D's. Use this information together with data below to answer the following questions:	**15**	**CO 5**

Part	Lead Time	Lot Size	On hand	Scheduled Rcpts
X	1	Lot for Lot	70	None
A	3	100	75	None
B	1	50	35	None
C	2	250	200	300, week 1
D	2	300	20	None

a) Make MRP records for each of X, A, B, C, and D. Production quantities and production start dates for X are: 30 each in week 1, 2, 3, 15 each in week 4, 5, 20 in week 6, 50 in week 8, and 40 in week 10.
Use the below MRP record template:

Week	
Gross Requirement	
Scheduled receipts	
Projected Available	
Net requirements	
Planned order receipt	
Planned order release	

Q12	The required data for a small project consisting of different activities are given below: *Activity* | *Immediate Predecessors* | *Normal time (weeks)* | | | *Normal cost* | *Crash time* | *Crash cost (Rs.)* | | | *Optimistic* | *Pessimistic* | *Most likely* | | | A | None | 4 | 12 | 5 | 300 | 5 | 400 B | None | 6 | 10 | 8 | 400 | 6 | 600 C | A | 4 | 14 | 6 | 400 | 5 | 600 D | B | 4 | 20 | 12 | 1000 | 4 | 1400 E | C | 8 | 8 | 8 | 800 | 8 | 800 F | B | 5 | 13 | 6 | 400 | 6 | 500 G | D,E | 3 | 7 | 5 | 1000 | 3 | 1400 H | F | 4 | 12 | 8 | 500 | 5 | 700 a) Draw the network diagram for the project and find the normal and minimum project length b) If the project is to be completed in 21 days with minimum crash cost which activities should be crashed to how many days?	**15**	**CO 2**
Q13	Find the forecast for the month of May using exponential smoothing method Demand data Jan 42.1 Feb 46.2 Mar 38.0 Apr 47.5 And the January Forecast was: 40 Smoothing constant = 0.15 b) Find the mean absolute deviation (MAD) if the actual demand for May is 50.0	**15**	**CO 3**