Total No. of Pages _03

1st SEMESTER **Course: MBA**

Delhi Technological University
Delhi School of Management

END SEMESTER EXAMINATION (Supplementary)
FEB-2019

EMBA106, Production and Operations Management

Time: 3:00 Hours *Max. Marks : 60*

Note : Answer any FIVE questions.
All questions carry equal marks.
Assume suitable missing data, if any.
Use of Statistical Chart is allowed

1. (a) What are the different types of the production systems? Write the merits and demerits of each of them.

   (b) Explain the methods used for decision making under uncertainty.

   (c) A company XYZ is thinking about the three decision alternatives: introduction of a new product by replacing the existing product at a much higher price (S_1) or effecting a moderate change in the composition of the existing product at a small increase in price (S_2) or bringing a minor change in the composition of the existing product with a negligible increase in price (S_3). The three possible states of nature or events are: high increase in sales (N_1), no change in sales (N_2) and decrease in sales (N_3). The marketing department of the company has worked out the payoffs in terms of yearly net profits for the strategies of each of the three events (expected sales). The

profits (payoffs) for different courses of action under various states of nature are shown in Table 1 [3+3+6]

Table 1:

Strategy	State of nature		
	N_1	N_2	N_3
S_1	750,000	350,000	200,000
S_2	550,000	500,000	50,000
S_3	350,000	350,000	350,000

2. (a) Discuss the steps of making a forecast?
(b) Write the disadvantages of the qualitative forecasting.
(c) Using the data given in Table 2, forecast the demand for the periods using the exponential smoothing method ($\alpha = 0.3$ and $\alpha = 0.5$). Also, compare the results graphically. [3+3+6]

Table 2:

Month (t)	1	2	3	4	5	6	7	8	9	10	11	12
Demand (D_t)	600	628	670	735	809	870	800	708	842	870	739	–

3. (a) Discuss the method of work sampling.
(b) Explain the term THERBLIG and its use in the work study.
(c) The average actual times for the five elements of a task were measured and shown in Table 3. The predetermined motion times for three elements are also given. Calculate the performance rating factor. [3+3+6]

Table 3:

Element No.	1	2	3	4	5
Avg. actual time, A (min.)	0.12	0.14	0.22	0.34	0.12
Predetermined motion time (P)	0.14	-	0.20	-	0.10

4. (a) Discuss the use of quality function deployment. Prepare a House of Quality for a product of your choice? [6]
(b) Explain the method of design of a completely new product. What are the different types of feasibility study you would like to do before starting the design of a new product? [6]

5. (a) Write the factors influencing the decision related to the facility location. Explain each how do they influence the decision regarding the same?
(b) Write the strategies used to meet the fluctuating demand in the marking incorporating the concepts of Aggregate planning.
(c) The time estimates in weeks for the activities of a PERT network are given in Table 4. [3+3+6]

Table 4

Activity	Optimistic time (t_o)	Most likely time (t_m)	Pessimistic time (t_p)
A-B	1	1	7
A-C	2	5	8
A-D	2	2	8
C-E	3	6	15
D-E	1	4	7
E-F	2	5	14
B-F	2	5	8

I. Draw the network diagram.
II. Calculate the earliest start (ES) and latest start (LS) for all the activities
III. Determine the project completion time.
IV. Calculate the standard deviation and variance of the project.

6. Write Short notes on the following: [3×4=12]
(a) Properties of O C Curve
(b) Deming's 14 Points
(c) Sequential sampling plan
(d) Pareto Analysis