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Fifth Semester B.E. Degree Examination, Jan./Feb. 2023
Operations Management

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a.   Define Operation Management. Explain in brief the functions of operations managements.
                                                                        (10 Marks)
    b.   Define Productivity. Explain the factors affecting productivity.   **(10 Marks)**

OR

2   a.   A glass firm developing a substantial back log of orders is considering three courses of action
   i)   Arrange for sub contracting
   ii) Begin overtime production construct new facilities
   The correct choice depends largely on future demand, which may be low, medium (or) high. By consensus, management ranks the respective probabilities as 0.10, 0.50 and 0.40. A cost analysis reveals the effect on profits as shown below :

Course of action	Profit (in thousand R) if the demand is		
	Low (P = 0.1)	Medium (P = 0.5)	High (P = 0.4)
A. Arrange for sub-constructing	10	50	50
B-Begin over time	-20	60	100
C-construct new facilities	-150	20	200

                                                                        (12 Marks)
    b.   Explain break-even analysis with necessary equations, graph and assumptions.   **(08 Marks)**

Module-2

3   a.   A company adopts method of least squares to develop a linear trend equation for the data as shown in the table below :

Year (X)	1	2	3	4	5	6	7	8	9	10	11
Shipment in tons (Y)	2	3	5	10	8	7	12	14	14	18	19

   Calculate the trend forecast for the year 12 and 20.   **(12 Marks)**
    b.   Explain the following forecasting methods :
   i)   Exponential smoothing
   ii) Linear Regression   **(08 Marks)**

OR

4   a.   What is forecasting? List the steps involved in forecasting process.   **(10 Marks)**
    b.   A firm use simple exponential smoothing with $\alpha = 0.1$ to forecast demand. The forecast for the week of February 1 was 500 units, where as actual demand turned out to be 450 units.
   i) Forecast the demand for the week of February 8
   ii) Assume that the actual demand during the week of the February 8 turned out to be 505 units. Forecast the demand for the week of February 15. Continue on forecasting through March 15, assuming the sub sequent demands were actually 516, 488, 467, 554 and 510 units.   **(10 Marks)**

Module-3

5 a. Explain the various factors that influence the location of plants.   (10 Marks)
   b. Define the following :
       i)   Design capacity
       ii) System capacity
       iii) Capacity planning
       iv) Facility layout   (10 Marks)

OR

6 a. Sketch and explain any two types of layouts.   (10 Marks)
   b. What is facility layout? What factors determines the types of layout used in an organization.   (10 Marks)

Module-4

7 a. Define aggregate planning and master scheduling. Explain the pure strategies used for aggregate planning in brief.   (10 Marks)
   b. List the common strategies used in aggregate planning. Explain any two.   (10 Marks)

OR

8 a. What are the objectives and importance of aggregate planning?   (10 Marks)
   b. Briefly explain the following with the help of a flow chart.
       i) Aggregate planning
       ii) Master scheduling   (10 Marks)

Module-5

9 a. What are the benefits and limitation of MRP?   (10 Marks)
   b. State the importance of purchasing and supply management.   (10 Marks)

OR

10 a. Briefly explain the following :
       i)   Vendor Development
       ii) E-procurement
       iii) Concept of tenders
       iv) The procurement process   (10 Marks)
   b. Write a note on make or buy decision.   (10 Marks)

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