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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

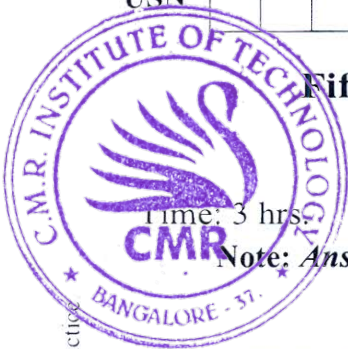
- 3 a. A company adopts method of least squares to develop a linear trend equation for the data as shown in the table below :

| | | | | | | | | | | | |
|----------------------|---|---|---|----|---|---|----|----|----|----|----|
| 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 |

- (12 Marks)
- b. 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 505units. 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)
