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20MCM15

## First Semester M.Tech. Degree Examination, July/August 2021 Operation Management

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions.**

- 1 a. Define production system. Explain factors affecting productivity. (10 Marks)  
b. Briefly explain classical, behavioural and quantitative management. (10 Marks)
  
- 2 a. Explain in brief Tasks of production manager. (10 Marks)  
b. What are the steps in decision making? Briefly explain. (10 Marks)
  
- 3 a. Explain canonical and standard form of LP problems, with suitable example. (10 Marks)  
b. Solve the following LPP :  

Maximize  $4x_1 + 5x_2 + 2x_3$

Subject to constraints  $x_1 + x_2 + x_3 \leq 10$

$x_1 + 3x_2 + 2x_3 \leq 12$

$x_1 + x_2 + x_3 = 6$

$x_1, x_2, x_3 > 0$

(10 Marks)
  
- 4 a. Briefly explain shortest notes and equipment replacement model with suitable example. (10 Marks)  
b. Solve the following by dynamic programming :  

Maximize  $Z = 9x_1 + 10x_2 + 4x_3$

Subject to  $2x_1 + 3x_2 + x_3 < 5$

Where  $x_1, x_2, x_3$  are non-negative integers.

(10 Marks)
  
- 5 a. Classify forecasting techniques, explain any two forecasting techniques. (10 Marks)  
b. Briefly explain Delphi method and market surveys. (10 Marks)
  
- 6 a. Explain Compound Amount Factor (CAF) and Sinking Fund Factor (SFF). (10 Marks)  
b. Explain in brief various types of layouts. (10 Marks)
  
- 7 a. Explain the various costs associated with inventory policy. (10 Marks)  
b. Define inventory. Explain parameters of an inventory policy. (10 Marks)
  
- 8 a. Briefly explain simple economic order quantity model. (10 Marks)  
b. Explain fixed order quantity system and periodic review system. (10 Marks)
  
- 9 a. What are the objectives of MRP system? (10 Marks)  
b. Briefly explain inputs to the MRP system. (10 Marks)
  
- 10 a. Define Kanban system, briefly explain Kanban system. (10 Marks)  
b. Explain JIT system and quality circle. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.