

M.E. First Semester (Civil Engg. ( Construction Engg. & Managt.)) (CGS)  
**13064 : Quantitative Methods in Construction Engineering : 1 CM 03**

P. Pages : 2

Time : Three Hours



AU - 3345

Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Illustrate your answer necessary with the help of neat sketches.
  5. Use of pen Blue/Black ink/refill only for writing the answer book.

**SECTION – A**

1. a) What is a Linear programming problem? Discuss the scope & role of linear programming in solving management problems. 7  
b) Maximise  $Z = 5x_1 + 3x_2 + 7x_3$  7  
Subject to  $x_1 + x_2 + 2x_3 \leq 26$   
 $3x_1 + 2x_2 + x_3 \leq 26$   
 $x_1 + x_2 + x_3 \leq 18.$

**OR**

2. a) Explain Simplex method and sensitivity analysis. 7  
b) Explain Queuing and simulation of OR models. 7
3. a) Explain Beta Distribution and Budget over run as they are used in PERT / CPM. 6  
b) Explain Decision analysis. 7

**OR**

4. a) Explain Game theory. 6  
b) Explain network models. 7
5. a) Distinguish between Deterministic and probabilistic Queuing model. 6  
b) Write note on cycle inventories and Buffer inventories. 7

**OR**

6. a) Explain periodic review system. 6  
b) Explain simulation modeling and their types. 7

**SECTION – B**

7. a) What is annuity? What are various types of annuity. 7  
b) Explain the concept of risk & uncertainty. 7

**OR**

8. a) Explain investment under certainty. 7  
b) Explain time value of money. 7  
9. a) Explain in brief different phases of business cycle. 6  
b) Explain in brief opportunity cost. 7

**OR**

10. a) Explain marginal principle. 6  
b) Explain business cycles and stabilization. 7  
11. a) Explain the concept of Decision making under monopolistic competition. 6  
b) Explain in brief Oligopoly. 7

**OR**

12. a) Explain pear load pricing. 6  
b) Explain competitive bidding of price. 7

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