C 23634

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Name..................................

Reg. No..............................

SECOND SEMESTER M.B.A. DEGREE EXAMINATION, JUNE 2017

BUS 2C 15—MANAGEMENT SCIENCE

(2013 Admissions)

Time : Three Hours

Maximum : 36 Weightage

Part A

Answer all questions.
Each question carries 1 weightage.

1. Define Quantitative approach.

2. What is Mathematical model ?

3. Define Infeasible solution.

4. What is Slack variables ?

5. What is a transportation model ?

6. Define Probabilistic demand.

(6 × 1 = 6 weightage)

Part B

Answer any six questions.
Each question carries 3 weightage.

7. Explain any three applications of LPP in management.

8. What is the importance of Poisson and Exponential distribution in Queuing theory.

9. Name any *three* methods of finding initial basic feasible solution for the transportation problems. Which one of them is best and why ?

10. Difference between linear programming and integer programming.

11. Discuss the algebraic method for solving 2 × 2 game.

12. Describe Monte Carlo method of stimulation.

13. Queuing theory can be effective in determining optimal service levels. Elucidate this statement with the help of an example.

14. What is the role of Operation Research in decision-making ? Explain.

(6 × 3 = 18 weightage)

Turn over

Part C

Answer any **two** *questions.*
Each question carries 6 weightage.

15. What does the difference of smallest and second smallest element signifies in case of solving Transportation problem with VAM method ?

16. A company which manufactures three products A, B and C requiring two resources labor and materials and want to determine the optimal product mix that maximizes profit the following linear program was formulated to answer this:-

    Maximize $Z = 3X_1 + X_2 + 5X_3$

    subject to $6X_1 + 3X_2 + 5X_3 \leq 45$ (labor)

    $3X_1 + 4X_2 + 5X_3 \leq 30$ (material)

    Where X_1, X_2, X_3 are the units of products A, B, C product. Find the optimum product mix.

17. The Indian navy wishes to assign 4 ships to patrol 4 sectors of the sea. In some areas ships are to be on the lookout for illegal fishing boats, and in other sectors to watch for enemy submarines, so the commander rates each ship in terms of its probable efficiency in each sector. These relative efficiencies are given in the table below :—

Ship	A	B	C	D
1 ...	20	60	50	55
2 ...	60	30	80	75
3 ...	80	100	90	80
4 ...	65	80	75	70

    On the basis of the rating shown, the commander wants to determine the patrols assignments producing the greatest over all efficiencies what is the optimal assignment ?

    (2 × 6 = 12 weightage)