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- (ii) The investment banker problem
- (iii) The Wall Street problem
- (iv) The portfolio selection problem
- (g) Determining the most efficient allocation of people, machines, equipment, etc., is characteristics of the LP problem type know as
  - (i) Production scheduling
  - (ii) Labour Planning
  - (iii) Assignment
  - (iv) Blending
- (h) The corner point solution method
  - (i) Will yield different results from the isoprofit line solution method
  - (ii) Requires that the profit all corners of the feasible region be compared
  - (iii) Will provide one, and only one, optimum
  - (iv) Requires that all corners created by all constraints be compared

P(2SD)

2. Solve using the Simplex method the following problem;

Maximize  $Z = f(x, y) = 3x + 2y$

subject to:  $2x + y \leq 18$

$2x + 3y \leq 42$

$3x + y \leq 24$

$x \geq 0, y \geq 0$

- 3. An organization has four destinations and three sources for supply of goods. The transportation cost per unit is given below. The entire availability is 700 units which exceeds the cumulative demand of 600 units. Decide the optimal transportation scheme for this case.
- 4. Define Kendall's notation for identifying queuing models explain different queuing models.
- 5. Explain difference between PERT and CPM.
- 6. Describe the replacement policy for items when money value changes with constant rate during the period.
- 7. A super market has two girls ringing up sales at the counters. If the service time for each customer is exponential with

30

mean 4 minutes and if the people arrive in a poisson fashion at the rate of 10 per hour.

- (i) What is the probability of having to wait for service?
- (ii) What is the expected percentage of idle time for each girl?
- (iii) If a customer has to wait, what is the expected length of his waiting time?

8. A manufacture is offered two machines A and B. A is priced at Rs.5,000 and running costs are estimated at Rs. 800 for each of the first five years, increasing by Rs. 200 per year in the sixth and subsequent years. Machine B, which has the same capacity as A, costs Rs. 2,500 put will have running costs of Rs. 1,200 per year for six years, increasing by Rs. 200 per year there after. If money is worth 10% per year which machine should be purchased? Assume that the machines will eventually be sold for scrap at a negligible price.

9. Derive the optimal ordering policy for a single period continuous probabilistic model with setup cost?

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6

shortg

(d) The following does not represent a factor a manager might consider when employing linear programming from a production scheduling:

- (i) Labour capacity
- (ii) Space limitations
- (iii) Product demand
- (iv) Risk assessment

(e) The graphical solution to a linear programming problem

- (i) Includes the corner point method and the isoprofit line solution method
- (ii) Is useful for four or fewer decision variables
- (iii) Is inappropriate for more than two constraints
- (iv) Is the most difficult approach, but is useful as a learning tool

(f) The selection of specific investments from among a wide variety of alternatives is the type of LP problem known as

- (i) The product mix problem

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3

P.T.O.