

|        |    | Initial                         | Distribution Centers |  |    |    |    |    |    |    |        |  |
|--------|----|---------------------------------|----------------------|--|----|----|----|----|----|----|--------|--|
|        |    |                                 | D1                   |  | D2 |    | D3 |    | D4 |    | Supply |  |
| Plants | P1 |                                 | 19                   |  | 30 |    | 50 |    | 7  | 12 | 7      |  |
|        | P2 |                                 | 3                    | 70   |    | 30 | 7  | 40 |    | 60 | 10     |  |
|        | P3 |                                 | 2                    | 40   | 8  | 10 |    | 60 | 8  | 20 | 18     |  |
|        |    |                                 | 5                    |  | 8  |    | 7  |    | 15 |    |        |  |
|        |    | Initial basic feasible solution |                      | $12 \times 7 + 70 \times 3 + 40 \times 7 + 40 \times 2 + 10 \times 8 + 20 \times 8 = \text{Rs. } 894.$ |    |    |    |    |    |    |        |  |

Java Joe’s Coffee has three roasting plants and three distribution centers. Given the initial transportation table for Java Joe’s Coffee generate an improved solution using the MODI method (only do one improved solution).

Calculate the indices, determine the entering and leaving variables, and compute the total cost of the improved solution.