Operations Research Assignment #2 Due date : 26:04:22

Q-1 ) An Image of PERT/ CPM is attach here in this file.

Q-2) Solve the following Assignment Models. (by using Hungarian ‘s method).

1. By using Assignment Model determine the best job to best person.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Person | JOB 1 | JOB 2 | JOB 3 | JOB 4 |
| 1 | $1 | $4 | $6 | $3 |
| 2 | $9 | $7 | $10 | $9 |
| 3 | $4 | $5 | $11 | $7 |
| 4 | $8 | $7 | $8 | $5 |

Answer: $21

1. By using Assignment Model determine the best job to best Machine.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Machine | JOB 1 | JOB 2 | JOB 3 | JOB 4 |  |
| M – 1 | $5 | $13 | $12 | $15 |  |
| M – 2 | $15 | $18 | $20 | $6 |  |
| M – 3 | $24 | $19 | $20 | $16 |  |
| M – 4 | $24 | $8 | $6 | $8 |  |

Answer: $36

Q 3) Solve the following problems by using (i) North west Corner Method

1. Least Cost Method (iii) Vogel’s Approximation. Also, state which method is most reliable and why? Does all these methods can be used for maximize problem.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Destination | | | Supply |
| Origin | 1 | 2 | 3 |
| 1 | 5 | 10 | 10 | 55 |
| 2 | 20 | 30 | 20 | 80 |
| 3 | 10 | 20 | 30 | 75 |
| Demand | 70 | 100 | 40 | Total = 210 |

Answer) (i) NW corner = $ 4425 , LCM = $ 3625 and Vogel’s approximation = $ 3350

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mills | | | Supply |
| Silos | 1 | 2 | 3 |
| 1 | 2 | 1 | 2 | 55 |
| 2 | 9 | 4 | 10 | 80 |
| 3 | 1 | 2 | 10 | 75 |
| Demand | 40 | 20 | 20 | Total = 210 |

Answer) (i) NW corner = $ 440, LCM = $ 380 and Vogel’s approximation = $ 380