

Advance Engineering Mathematics(AEM)

**Branch :Information Technology,
Sem:IIIrd**



Dr. Kashish Parwani

Associate Professor, Dept. of Mathematics

JECRC, Sitapura Jaipur

Vision of the Institute

To become a renowned centre of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities

Dr. Kashish Parwani

Associate Professor (Mathematics), JECRC, Jaipur

Mission of the Institute

- Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.
- Identify, based on informed perception of Indian, regional and global needs, the areas of focus and provide platform to gain knowledge and solutions.
- Offer opportunities for interaction between academia and industry.
- Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders may emerge.

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Course Outcomes

- **CO1:** To learn the concepts and principles of Random variables and Probability distribution.
- **CO2:** To learn the formulation of different mathematical problems into optimization problems.
- **CO3:** Apply the principles of optimization using differential calculus.
- **CO4:** To understand the concepts of Linear Programming.

Profit Maximization Problem:

Converting it to Minimization Problem:

Step:1 Find the cell entry which is maximum and subtract all the cell entries from it. The transportation problem so obtained will be minimum cost problem.

Step 2: It can be solved by usual method.

Q8. Solve the following transportation problem to maximize profit.

		1	2	3	4	Supply
Origin	A	40	25	22	33	100
	B	44	35	30	30	30
	C	38	38	28	30	70
	Demand	40	20	60	30	200/150

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Solve: Balance the problem by adding one dummy destination 5

	1	2	3	4	5	Supply
A	40	25	22	33	0	100
B	44	35	30	30	0	30
C	38	38	28	30	0	70
Demand	40	20	60	30	50	

The maximum cost entry is 44. Subtract all the cell entries from it.
The transportation problem becomes as

	1	2	3	4	5	Supply
A	4	19	22	11	44	100
B	0	9	14	14	44	30
C	6	6	16	14	44	70
	40	20	60	30	50	

Solve it....

Ans: 5010

Overtime Production

Q9. A company has plants A,B, and C which supply to supermarkets at D,E,F and G. The plants capacities are 230,280 and 180 respectively for regular production . If overtime production is utilized, the capacities can be increased to 300,360 and 190 respectively, Increment, unit overtime costs are Rs. 5,4 and 6 respectively. The current supermarket requirement are 165,175,205 and 165 respectively. Unit shipping costs between the plants and the supermarkets are

	D	E	F	G
A	6	7	8	10
B	4	10	7	6
C	3	22	2	11

Determine the optimum distribution for the company to minimize cost.

Sol:

	D	E	F	G	D'	Supply
A	6	7	8	10	0	230
B	4	10	7	6	0	280
C	3	22	2	11	0	180
A ₁	11	12	13	15	0	70
B ₂	8	14	11	10	0	80
C ₃	9	28	8	17	0	10
Demand	165	175	205	165	140	

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*Thank
You!*

Dr. Kashish Parwani
Associate Professor (Mathematics, JECRC, Jaipur)

References:

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3. <https://www.youtube.com/watch?v=RnZnllksdwU>
4. https://www.youtube.com/watch?v=3M_r6FgM1iU