

Dr. Babasaheb Ambedkar Open University
Term End Examination January – 2026

Course : Diploma Course
Subject Code : DOR-04
Subject Name : Other Methods of O.R.

Date : 03/03/2026
Time : 11:30am to 01:45pm
Duration : 02.15 Hours
Max. Marks : 70

Q-1 Explain the decision tree approach in decision making. **14**

OR

Jaydeep a manufacturer makes a product, of which the principal ingredient is a chemical X. At the moment, the manufacturer spends Rs. 1,000 per year on supply of X, but there is a possibility that the price may soon increase to four times its present figure because of a worldwide shortage of the chemical. There is another chemical Y, which the manufacturer could use in conjunction with a third chemical, Z in order to give the same effect as chemical X. Chemical Y and Z would together expense the manufacturer Rs. 3,000 per year, but their prices are unlikely to rise. What action should the manufacturer take? Apply the maximin and minimax criteria for decision making and give two sets of solutions. If the coefficient of optimism is 0.4, find the course of action that maximizes the expense.

Q-2 Discuss the decision making Under Uncertainty. **14**

OR

The probability of the demand for lorries for hiring on any day in a given district is as follows:

No. of lorries demanded	0	1	2	3	4
Probability	0.1	0.2	0.3	0.2	0.2

Lorries have a fixed expense of Rs. 90 each day to keep the daily hire charges (net of variable expenses of running) Rs. 200. If the lorry-hire company owns 4 lorries, what is its daily expectation? If the company is about to go into business and currently has no lorries, how many lorries should it buy?

Q-3 Explain Simulation as a risk reducing measure in Capital Budgeting. **14**

OR

The probability distributions of two projects' NPV are given below:

Project X		Project Y	
NPV	Probability	NPV	Probability
Rs. 6,000	0.2	Rs. 0	0.1
Rs. 7,500	0.7	Rs. 7,500	0.7
Rs. 10,000	0.1	Rs. 15,000	0.2

Calculate the expected value, the standard deviation and the coefficient of variation for each project. Which of these mutually exclusive projects do you prefer and why?

Q-4 Discuss Risk Adjusted Discount Rate and Certainty Equivalent Coefficient as a risk reducing measure in Capital budgeting. **14**

OR

Mahavir Ltd. is considering to purchase one out of two machines for production of a new product. The investment in each machine will be Rs. 1,10,000 and they would give benefit of 12 years. For each alternative, three estimates of cash flows are given: Most Likely, Optimistic and Pessimistic.

	Machine A Rs.	Machine B Rs.
Cost Price	1,10,000	1,10,000
Estimate of Cash Flow:		
Optimistic	33,000	44,000
Most Likely	25,000	20,000
Pessimistic	19,000	1,000

The cost of capital of the project is 14%. Which project is more risky? The annuity of Rs. 1 at 14% for 12 years is Rs. 5.66.

Q-5 Write Short Notes (Any two)

14

1. Expected Value of Perfect Information (EVPI)
2. Steps in Decision Theory Approach
3. Value of information
4. Coefficient of Variation
5. Pay back criteria
