**Subject:Optimization Techniques**

**ASSIGNMENT NO.6**

Q.1) The adjoining payoff table gives the payoffs resulting from the acts A1, A2, and A3 and the states of nature E1, E2, and E3 whose probabilities are 0.1, 0.7 and 0.2 respectively.

|  |  |  |  |
| --- | --- | --- | --- |
| States of Nature | Acts | | |
| A1 | A2 | A3 |
| E1 | 25 | -10 | -125 |
| E2 | 400 | 440 | 400 |
| E3 | 650 | 740 | 750 |

1. Set up the opportunity loss table and calculate expected opportunity loss (EOL)

of each alternative course of action.

Verify that the decision for selection the best act using EMV and EOL gives the same result.

Q.2) Pay Off of three acts A, B and C. The states of nature P,Q & R are given below :

Acts

|  |  |  |  |
| --- | --- | --- | --- |
| State of Nature | A | B | C |
| P | -35 | 120 | -100 |
| Q | 250 | -350 | 200 |
| R | 550 | 650 | 700 |

The probabilities of the states of nature are 0.5,0.1 and 0.4 respectively. State which act can be chosen as the best act

Q.3)Pay Off of three course of actions A1,A2,A3 . The states of nature S1,S2&S3 are given below :

State of Nature

|  |  |  |  |
| --- | --- | --- | --- |
| Couse Of Actions | S1 | S2 | S3 |
| A1 | 65 | 0 | 45 |
| A2 | 0 | 55 | 60 |
| A3 | 76 | -15 | 80 |

State which course of action can be chosen as the best.

Q.4) Consider the following decision tree and probabilities of states are 0.7 and 0.3.State which course of action is best.

S1(0.7) 25000

S2(0.3) 45000

A1 A2 S1(0.7) 35000 A3 S2(0.3) 50000 S1(0.7) 20000 S2(0.3) 30000

A