IYB560E EXECUTIVE AND GROUP DECISION MAKING
SOLUTIONS TO HOMEWORK ASSIGNMENT QUESTIONS

1

Maximax: (8 pts.) **40**   20   12   (2 pts.) <u>purchase a drill</u>

Maximin: (8 pts.) -8   4   **10**   (2 pts.) <u>purchase a grinder</u>

Hurwicz: (8 pts.) 6.4   8.8   **10.6**   (2 pts.) <u>purchase a grinder</u>

Laplace: (8 pts.) **16**   12   11   (2 pts.) <u>purchase a drill</u>

Minimax: (5 pts.) Regret table

Regrets	Contract	No contract
Drill press	0	18
Lathe	20	6
Grinder	28	0

(8 pts.) **18**   20   28   (2 pts.) <u>purchase a drill</u>

2

Decision tree is represented as

Node: Branch1 (new node or payoff), Branch 2 (new node or payoff),….

(10 pts.) <u>The machine shop owner decided to hire a military consultant</u>

(1.5 pts.) Chance node 1: Favorable report 40% (Decision node1) – Unfavorable report 60% (Decision node 2)

(1.5 pts.) Decision node 1: Drill press (Chance node 2) – Lathe (Chance node 3) – Grinder (Chance node 4)

(1.5 pts.) Decision node 2: Drill press (Chance node 5) – Lathe (Chance node 6) – Grinder (Chance node 7)

(1.5 pts.) Chance node 2: Contract 70% (40K) – No contract 30% (–8K)

(1.5 pts.) Chance node 3: Contract 70% (20K) – No contract 30% (4K)

(1.5 pts.) Chance node 4: Contract 70% (12K) – No contract 30% (10K)

(1.5 pts.) Chance node 5: Contract 20% (40K) – No contract 80% (–8K)

(1.5 pts.) Chance node 6: Contract 20% (20K) – No contract 80% (4K)

(1.5 pts.) Chance node 7: Contract 20% (12K) – No contract 80% (10K)

Expected values are computed as follows:

(1.5 pts.) EV (chance node 2) = 25.6K

(1.5 pts.) EV (chance node 3) = 15.2K

(1.5 pts.) EV (chance node 4) = 11.4K

      (1.5 pts.) EV (chance node 5) = 1.6K

      (1.5 pts.) EV (chance node 6) = 7.2K

      (1.5 pts.) EV (chance node 7) = 10.4K

      (1.5 pts.) EV (decision node 1) = 25.6K

      (1.5 pts.) EV (decision node 2) = 10.4K

      (1.5 pts.) EV (chance node 1) = 16.48K

- (6 pts.) Decision strategy: <u>If report is favorable, purchase a drill; if report is unfavorable, purchase a grinder</u>

- (2 pts.) EV (strategy) = $ 16.48K