ANSWERS TO HOMEWORK 1 QUESTIONS

- 1.
- **a.** (10 pts.)

Decision node \rightarrow Decision branches: Fund A – Fund B Chance nodes \rightarrow Chance branches: Good, Fair, Poor EV(A) = 10(0.2) + 2(0.3) + (-5)(0.5) = 0.1EV(B) = 6(0.2) + 4(0.3) + (0)(0.5) = 2.4

- 0.1K < 2.4K: DM should choose Fund B
- **b.** (15 pts.)

Let x = the payout for Fund A in a good economy If EMV(A) = EMV(B), then X (0.2) + 2,000 (0.3) + (-5,000) (0.5) = 2,400 In this case x = \$21,500

2.

		Good	Fair	Poor	Max	Min	α=.3	Ave
Fι	ınd A	\$10K	\$2K	-\$5K	10	-5	-0.5	7/3
Fι	ınd B	\$6K	\$4K	0	6	0	1.8	10/3
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		Good	Fair	Poor	Max			
Fι	ınd A	0	2	5	5			
Fι	ınd B	4	0	0	4			

- **a.** (5 pts.) Fund A: \$10K
- **b.** (5 pts.) Fund B: \$0
- **c.** (5 pts.) Fund B: \$1.8K
- **d.** (5 pts.) Fund B: \$3.33K
- **e.** (10 pts.) Fund B: \$4K

3.

- (10 pts.) Wald's maximin method chooses A1 if x > 2, A1 or A2 if x = 2, A2 if x < 2
- (10 pts.) Hurwicz's method chooses A1 if x > 7, A1 or A3 if x = 7, A3 if x < 7
- (10 pts.) Laplace's method chooses A1 if x > 3, A1 or A4 if x = 3, A4 if x < 3
- (10 pts.) Savage's minimax method chooses A1 if $x \ge 6$; A1 if x > 2, A1 or A3 if x = 2, A3 if x < 2

(note that θ 1 column has been split into two cases x < 6 and $x \ge 6$)

(5 pts.) Thus the four methods uniquely lead to choice of A1 for x > 7