MA2210 Math. Methods in Decision Making
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MA2210 Assignment 6

Due Date: Friday, April 20, 4:00pm.

Please recall the presentation rules for the course.
Please read Chapter 13, *Decision Analysis*, for this week's assignment.
Please complete the following five problems:

1. #11 on p441
2. #12 on p441
3. #2 on p637-8
4. #9 on p640-1
5. You must make a decision on a back-up system for your pumps at your chemical plant. Your choices are

   d_1 no action d_2 minimal modifications d_3 major overhaul

   For simplicity of presentation to management, the possible industrial accidents over the coming 5-year planning period are categorized into the following three states of nature, with estimated probabilities as given:

   s_1 minor accidents, requiring no EPA reporting ($p_1 = 0.7$)
   s_2 one medium scale spill ($p_2 = 0.29$)
   s_3 major industrial accident ($p_3 = 0.01$)

   Here is the estimated cost table, in \$100,000 units, for this decision

	State of Nature		
	s_1	s_2	s_3
Decision Alternative	$p = 0.7$	$p = 0.29$	$p = 0.01$
d_1	2	20	800
d_2	10	10	200
d_3	40	40	50

   With brief explanation, give the best decision and anticipated cost using the

   (a) optimistic approach

   (b) pessimistic approach

   (c) expected value approach

   (d) minimax regret approach (here, give regret instead of cost)