ITOM Practice Exam #3

Banana Inc. manufactures next generation digital watches and has come up with the prototype of

uWatch: a digital watch that can also be used as a smartphone. Banana Inc.’s financial analyst Bill

Jobless wants to perform a risk analysis to understand the probabilities associated with profits and

losses associated with the first year of uWatch, and needs your help.

1. Selling price of one unit of uWatch is $200
2. Administrative cost for total production of uWatch is $3,000,000.
3. Labor cost per unit of uWatch is uniformly distributed between 50 and 100.
4. Parts cost per unit of uWatch is described by a discrete probability distribution shown in the table below.

Parts cost per unit of uWatch Probability

20 0.1

50 0.5

70 0.4

v. Demand for the first year is described by a normal probability distribution with expected demand 60,000 units and variability (standard deviation)10,000.

vi. There are no other costs or revenue sources for uWatch besides what is described from i) to v).

2. Pamela Prentiss has just completed a science fiction novel. It has attracted offers from both a movie company and a television network. The TV network is willing to offer a lump sum of $900,000 for the rights to develop a TV series based on the novel. The movie company has proposed a deal which would determine the payoff to Pamela based on the box-office success of the movie. If the movie is a big hit, she would get $3 million, if the box office returns are small, she will get $250,000, and for medium box office returns, she will get $1 million (the company uses generally accepted box office return levels to determine each of the three levels). Pamela estimates that the probabilities of the three levels are as follows: P(Small) =0.3, P(Medium) = 0.6, P(Big) = 0.1.

Before making her decision, Pamela hears that Blockbuster Market Analytics, Inc., a company can conduct a survey to determine whether the market response to the movie will be favorable or unfavorable, for a fee of $100,000. The company’s past record can be summarized by the following conditional probability table: