

Solution for Assignment 7

1. Among the following factors, the factor that does not affect the level of accuracy of an estimate is
 - a. Difficulty of estimating the item in question
 - b. Qualification of estimator
 - c. Methods or techniques employed
 - d. Number of elements to be estimated
2. Cost estimate is opinion based of analysis and judgement of
 - a. Cost of product/system
 - b. Life of system/product
 - c. Reliability of a product/system
 - d. None of above
3. An 80% learning function means direct labour hours required to build forth component will be
 - a. 80% of hours required to build first component
 - b. 64% of hours required to build first component
 - c. 20% of hours required to build first component
 - d. 40% of hours required to build first component
4. While making decision about alternatives, if any alternative is not clearly preferred with respect to all other alternatives, the criterion using which the alternative is considered for being dropped is
 - a. Dominance criterion
 - b. Aspiration level criterion
 - c. Most probable future criterion
 - d. Expected value criterion
5. The criterion that involves selecting alternative which maximizes probability of achieving a set of achievement is
 - a. Dominance criterion
 - b. Aspiration level criterion
 - c. Most probable future criterion
 - d. Expected value criterion
6. Overhead allocation rates can be calculated on the basis of
 - a. Direct labour cost rate
 - b. Direct labour hour rate
 - c. Direct material cost rate
 - d. All of the above
7. While making decision under uncertainty, the criterion that involves an index of relative optimism and pessimism is
 - a. Laplace criterion
 - b. Maximin criterion
 - c. Minimax criterion
 - d. Hurwicz criterion

8. The cost of arranging a training program is described by the following probability distribution. The expected cost of arranging the program will be

Cost (In Lakhs of Rupees)	Probability of Occurrence
5	0.20
6	0.30
8	0.25
10	0.20
12	0.05

- a. Rs. 6.4 Lakhs
- b. Rs. 7.4 Lakhs**
- c. Rs. 6.8 Lakhs
- d. Rs. 10.2 Lakhs

Solution: Expected Cost = $5 \times 0.2 + 6 \times 0.3 + 8 \times 0.25 + 10 \times 0.2 + 12 \times 0.05$
 $= 7.4$ Lakhs (Ans)

9. The following matrix gives the payoff values for three alternatives and three possible states of nature. The alternative which will be chosen using Hurwicz rule with $\alpha = 0.75$ will be

Alternative	State of Nature		
	S ₁	S ₂	S ₃
A ₁	50	80	80
A ₂	60	70	20
A ₃	90	30	60

- a. A₁
- b. A₃**
- c. A₂
- d. Either A₁ or A₂

Solution: Expected Value = $\alpha \times \text{Row maximum} + (1 - \alpha) \times \text{Row minimum}$

For alternative A₁ $\rightarrow 0.75 \times 80 + 0.25 \times 50 = 72.5$

For alternative A₂ $\rightarrow 0.75 \times 70 + 0.25 \times 20 = 57.5$

For alternative A₃ $\rightarrow 0.75 \times 90 + 0.25 \times 30 = 75$ (Ans)

10. In cash estimation involving learning, the term learning implies that to

- a. Direct-Labour hours will increase per unit when production quantity is doubled
- b. Direct-Labour hours will decrease per unit when production quantity is doubled**
- c. Direct-Material cost per unit will increase when production quantity is doubled
- d. Direct-Material cost per unit will decrease when production quantity is doubled