(iv) Exactly one state of nature

8. Which of the following statements is true?
   (i) The EVPI can be determined without using probabilities
   (ii) A decision tree usually begins with a decision node
   (iii) Payoff tables will always contain positive numbers
   (iv) All of above.

9. A bad decision is:
   (i) does not use all available information
   (ii) a decision not based on logic.
   (iii) does not consider all alternatives
   (iv) all the above

10. The maximin criterion is a feature of which of the following?
    (i) Decision-making under certainty
    (ii) Decision-making under sample information
    (iii) Decision-making under uncertainty
    (iv) Decision-making under perfect information

Question No. 2. Given that four states (S1, S2, S3,S4), three decisions (Gold, Bond, Stock) with mapping table for payoff and corresponding utility. Find

Pay-Off	9000	4500	4000	3000	-1500	-4000	-5000
Utility	100	94	80	70	50	30	0

Alternative	S1	S2	S3	S4

Type here to search

Question No. 6. Given prior probability, posterior probability for positive forecast, posterior probability for negative forecast, $\sum$ Joint Probability (+) = 0.58 , $\sum$ Joint Probability (-) = 0.42 and EREV = 140. Find the Expected Value of Sample Information (EVSI), for the following payoff table?

Decision	States of Nature				
	Large Rise	Small Rise	No Change	Small fall	Large Fall
Gold	300	200	150	-100	-150
Bond	500	250	100	-200	-600
Prior Prob	0.2	0.3	0.3	0.1	0.1
Posterior Prob. (+)	0.276	0.362	0.259	0.069	0.034
Posterior Prob. (-)	0.095	0.214	0.357	0.143	0.190

with the ERPI
(iii)The maximum EREV from the joint probability
(iv)None of above

5. The EVSI is always
   (i)less than EV of best decision without SI
   (ii) equal to the minimum EREV
   (iii)greater than the EVPI
   (iv)non-negative

6. When making a decision under risk, which of the following is a valid decision-making criterion?
   (i)Maximum expected value
   (ii) Maximin
   (iii)Minimax regret
   (iv)Maximax

7. Which of the following occurs in decision making under uncertainty?
   (i) Conditional probabilities.
   (ii)Equally likely probabilities for all states of nature
   (iii) A payoff table for each possible combination of decisions and outcomes
   (iv) Exactly one state of nature.

8. Which of the following statements is true?
   (i) The EVPI can be determined without using probabilities
   (ii)A decision tree usually begins with a decision node.
   (iii) Payoff tables will always contain positive numbers
   (iv) All of above.

9. A bad decision is:
   (i) does not use all available information.
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   (iii) does not consider all alternatives
   (iv) all the above.

10. The maximin criterion is a feature of which of the following?
    (i) Decision-making under certainty
    (ii) Decision-making under sample information
    (iii) Decision-making under uncertainty
    (iv) Decision-making under perfect information

Question No. 4

Consider the following forecasting technique applied to stationary time series for 4-period weighted moving average technique with forecast and errors applied to stationary time series. Find probabilities P (0.4, 0.3, 0.2, 0.1). Show all calculation.

Time	1	2	3	4	5	6	7
Data Series	200	220	180	160	210	230	205
4-period weighted moving average							
Error for 4-Period WMA							

(a) Performance measure using MSE for 4-period WMA technique is ___ ___

(b) Performance measure using MAPE for 4-period WMA technique is ___ ___

Question No. 5

Find the Expected Value of Perfect Information (EVPI), for the following payoff table? Show your calculation. Note: Some blank rows and columns are given for your convenience.

Decision Alternatives	States of Nature						
	Large Rise	Small Rise	No Change	Small Fall	Large Fall		
Gold	250	200	150	-100	-150		
Bond	500	250	100	-200	-600		
Stock	60	60	60	60	60		
Probability	0.25	0.25	0.3	0.1	0.1	1	

utility =

under EU =

c) Worth of its utility (in payoff) =

Question No. 3.
Data series for the week 1 to 7 is given in the following. The initial forecast at week 1 is given as 272. Find the forecast for week 1 to 10 using exponential smoothing technique applied to stationary time series for $\alpha = 0.2$. Show all calculations.

Week	Series	Forecast
1	272	
2	280	
3	395	
4	438	
5	431	
6	446	
7	354	
8		
9		
10		

Payoff Table

Alternative	S1	S2	S3	S4
Gold	9000	4000	-5000	3000
Bond	4500	3000	-4000	-1500
Stock	3000	3000	-1500	4500
Prob	0.2	0.3	0.2	0.3

Utility Table

Alternative	S1	S2	S3	S4	Exp
Gold					
Bond					
Stock					

a) The optimal decision under EU = ___

b) Its expected utility = ___

c) Worth of its utility (in payoff) = ___

Question No. 3. Data series for the week 1 to 7 is given in the t___ given as 272. Find the forecast for week 1 to 10 using ex___ stationary time series for $\alpha = 0.2$. Show all calculations.

Question No. 2. Given that four states (S1, S2, S3,S4), three decisions (Gold, Bond, Stock) with mapping table for payoff and corresponding utility. Find.

Pay-Off	9000	4500	4000	3000	-1500	-4000	-5000
Utility	100	94	80	70	50	30	0

Payoff Table

Alternative	S1	S2	S3	S4
Gold	9000	4000	-5000	3000
Bond	4500	3000	-4000	-1500
Stock	3000	3000	-1500	4500
Prob	0.2	0.3	0.2	0.3

Utility Table

Alternative	S1	S2	S3	S4	Expected Utility
Gold					
Bond					
Stock					

a) The optimal decision under EU = ___
b) Its expected utility = ___
c) Worth of its utility (in payoff) = ___

Question No. 3. Data series for the week 1 to 7 is given in the following. The initial forecast at week 3 is
given as ???. Find the forecast for week 1 to 10 using exponential smoothing technique.

Question No. I: Circle the appropriate answer for the following MCQs

1. For the weight values used in the weighted moving average technique.
   (i) each weight is assigned an equal value
   (ii) determined by a formula.
   (iii) the highest weightage is allocated to the most recent value. I
   (iv) assigned so that the sum of the weights is equal to 10.

2. In order to use Bayes' Theorem to calculate the P(A/B), it is necessary to know which of the following:
   (i) P(B) and P(B/A)
   (ii) P(A), P(B), and P(B/A)
   (iii) P(A) and P(B/A)
   (iv) P(A) and P(B)

3. A joint probability is:
   (i) P(B)
   (ii) P(B/A)
   (iii) P(A/B)
   (iv) P(A and B).

4. The EVPI is calculated by subtracting:
   (i) The maximum EREV from the ERPI.
   (ii) EVSI from the ERPI.
   (iii) The maximum EREV from the joint probability.
   (iv) None of above

5. The EVSI is always:
   (i) less than EV of best decision without SI.
   (ii) equal to the minimum EREV.
   (iii) greater than the EVPI
   (iv) non-negative.

6. When making a decision under risk, which of the following is a valid decision-making criterion?
   (i) Maximum expected value
   (ii) Maximin
   (iii) Minimax regret
   (iv) Maximax

7. Which of the following occurs in decision making under uncertainty?
   (i) Conditional probabilities