MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 5 August 2022, 4:33 PM
State	Finished
Completed on	Friday, 5 August 2022, 4:48 PM
Time taken	15 mins
Grade	**0.90** out of 1.00 (**90**%)

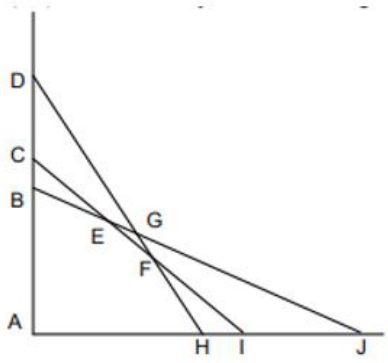
Print friendly format

Question **1**

Correct

Mark 0.10 out of 0.10

The following diagram shows the constraints for a LP model. Assume the point (0,0) satisfies constraint (B,J) but does not satisfy constraints (D,H) or (C,I).



Which set of points on this diagram defines the feasible solution space?

a. F, G, I, J ✔

b. A, D, G, J

c. G, E, F

d. F, G, H, J

The correct answer is: F, G, I, J

Question **2**

Correct

Mark 0.10 out of 0.10

Why is it important to study the graphical method of solving LP problems?

a. It is faster than computerized methods.

b. To develop an understanding of the linear programming strategy, ✔

c. It provides better solutions than computerized methods

d. Because lines are easy to draw on paper.

The correct answer is: To develop an understanding of the linear programming strategy,

Question **3**

Correct

Mark 0.10 out of 0.10

Which of the following actions on applicable constraints would expand the feasible region of an LP model?

a. Adding an additional constraint.

b. Loosening the constraints. ✔

c. Tightening the constraints.

d. Multiplying each constraint by 2.

The correct answer is: Loosening the constraints.

Question **4**

Correct

Mark 0.10 out of 0.10

The objective function for a LP model is $6\ X_1 + 4\ X_2$. If $X_1 = 20$ and $X_2 = 30$, what is the value of the objective function?

a. 0

b. 120

c. 50

d. 240 ✔

The correct answer is: 240

Question **5**

Correct

Mark 0.10 out of 0.10

A company uses 8 pounds of resource 1 to make each unit of X_1 and 6 pounds of resource 1 to make each unit of X_2. There are only 300 pounds of resource 1 available. Which of the following constraints reflects the relationship between X_1, X_2 and resource 1?

a. $8\ X_1 + 6\ X_2 \leq 300$ ✔

b. $8\ X_1 + 6\ X_2 \geq 300$

c. $8\ X_1 \leq 300$

d. $8\ X_1 + 6\ X_2 = 300$

The correct answer is: $8 X_1 + 6 X_2 \leq 300$

Question **6**

Correct

Mark 0.10 out of 0.10

The constraints $X_1 \geq 0$ and $X_2 \geq 0$ are referred to as

a. positivity constraints.

b. non-negativity conditions. ✔

c. optimality conditions.

d. non-positivity constraints.

The correct answer is: non-negativity conditions.

Question **7**

Correct

Mark 0.10 out of 0.10

The constraint for resource 1 is $5 X_1 + 4 X_2 \leq 200$. If $X_1 = 20$ and $X_2 = 15$, how much of resource 1 is unused?

a. 50

b. 40 ✔

c. 200

d. 140

The correct answer is: 40

Question **8**

Correct

Mark 0.10 out of 0.10

The constraint for resource 1 is $6 X_1 + 3 X_2 = 300$. If $X_1 = 20$, what it the maximum value for X_2?

a. 100

b. 60 ✔

c. 180

d. 40

The correct answer is: 60

Question **9**

Incorrect

Mark 0.00 out of 0.10

The production manger is planning the production schedule for the next quarter and needs to decide how much of each of the 2 products, X_1 and X_2, to make. The company wants to maximize its profits.

X_1 = number of product 1 to make

X_2 = number of product 2 to make

MAX: $200 X_1 + 150 X_2$

Subject to: $3 X_1 + 6 X_2 \leq 300$ - resource 1

$3 X_1 + 7 X_2 \leq 175$ - resource 2

$X_1, X_2 \geq 0$

How many units of resource 1 are consumed by each unit of product 2 produced?

- a. 3
- b. 50 ✖
- c. 300
- d. 6

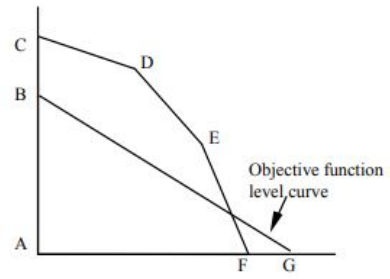
The correct answer is: 6

Question **10**

Correct

Mark 0.10 out of 0.10

This graph shows the feasible region (as defined by points ACDEF) and objective function level curve (BG) for a maximization problem. Which point corresponds to the optimal solution to the problem?



- a. D ✔
- b. B
- c. E
- d. C
- e. A

The correct answer is: D

◄ In-semester Test: Online Quizzes (Weight 10%)

Jump to...

Quiz Week 3 ►

Quiz Week 3 ▶

MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 12 August 2022, 4:56 PM
State	Finished
Completed on	Friday, 12 August 2022, 5:11 PM
Time taken	15 mins
Grade	**0.90** out of 1.00 (**90**%)

Print friendly format

Question **1**

Correct

Mark 0.10 out of 0.10

If the shadow price for a resource is 0 and 150 units of the resource are added what happens to the objective function value?

a. increases more than 0 but less than 150

b. increase by 150

c. no increase ✔

d. increases but by an unknown amount

The correct answer is: no increase

Question **2**

Correct

Mark 0.10 out of 0.10

The allowable decrease for a changing cell (decision variable) is

a. the amount by which objective function coefficient can decrease without changing the final optimal solution. ✔

b. the amount by which the constraint coefficient can decrease without changing final optimal solution.

c. an indication of how many more units to produce to maximize profits.

d. an indication of how much to charge in order to get the optimal solution.

The correct answer is: the amount by which objective function coefficient can decrease without changing the final optimal solution.

Question **3**

Correct

Mark 0.10 out of 0.10

When a solution is degenerate the reduced costs for the changing cells (variable cells)

- a. may not be unique. ✔
- b. is equal to infinity.
- c. is always equal to zero.
- d. may be set to any value the manager needs.

The correct answer is: may not be unique.

Question **4**

Correct

Mark 0.10 out of 0.10

When a manager considers the effect of changes to an LP model's coefficients he/she is performing

- a. sensitivity analysis. ✔
- b. coefficient analysis.
- c. random analysis.
- d. qualitative analysis.

The correct answer is: sensitivity analysis.

Question **5**

Correct

Mark 0.10 out of 0.10

Binding constraints have

- a. resources in surplus.
- b. positive slack.
- c. zero slack. ✔
- d. negative slack.

The correct answer is: zero slack.

Question **6**

Correct

Mark 0.10 out of 0.10

What is the significance of an absolute cell reference in Excel?

- a. It is the only formula used to refer to a cell on another spreadsheet
- b. The cell reference changes if the formula containing the reference is copied to another location

c. The cell will always contain the absolute value of any number that is entered into it

d. The cell reference will not change if the formula containing the reference is copied to another location ✔

The correct answer is: The cell reference will not change if the formula containing the reference is copied to another location

Question 7

Correct

Mark 0.10 out of 0.10

A binding less than or equal to (=) constraint in a maximization problem means

a. another constraint is limiting the solution.

b. the requirement for the constraint has been exceeded.

c. that all of the resource is consumed in the optimal solution. ✔

d. it is not a constraint that the level curve contacts with.

The correct answer is: that all of the resource is consumed in the optimal solution.

Question 8

Incorrect

Mark 0.00 out of 0.10

The solution to an LP problem is degenerate if

a. the constraints have an allowable increase or allowable decrease of zero.

b. the shadow prices of any of the constraints have an allowable increase or allowable decrease of infinity.

c. the objective coefficients of any of the variables have an allowable increase or allowable decrease of zero. ✖

d. the shadow prices of any of the constraints have an allowable increase or allowable decrease of zero.

The correct answer is: the constraints have an allowable increase or allowable decrease of zero.

Question 9

Correct

Mark 0.10 out of 0.10

The shadow price of a nonbinding constraint is

a. indeterminate

b. positive

c. zero ✔

d. negative

The correct answer is: zero

Question **10**

Correct

Mark 0.10 out of 0.10

When the allowable increase or allowable decrease for the objective function coefficient of one or more variables is zero it indicates (in the absence of degeneracy) that

a. the problem is infeasible.

b. alternate optimal solutions exist. ✔

c. no optimal solutions can be found.

d. there is only one optimal solution.

The correct answer is: alternate optimal solutions exist.

◄ Quiz Week 2

Jump to...

Quiz Week 4 ►

MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 19 August 2022, 7:42 PM
State	Finished
Completed on	Friday, 19 August 2022, 7:57 PM
Time taken	14 mins 43 secs
Grade	**0.70** out of 1.00 (**70**%)

Print friendly format

Question **1**

Correct

Mark 0.10 out of 0.10

A company will be able to obtain a quantity discount on component parts for its four products, X_1, X_2, X_3 and X_4, if it produces beyond certain limits. To get the X1 discount it must produce more than 50 X_1's. It must produce more than 60 X_2's for the X_2 discount, 70 X_3's for the X_3 discount and 80 X_4's for the X_4 discount. How many binary variables are required in the formulation of this problem?

- a. 2
- b. 8
- c. 4 ✔
- d. 12

The correct answer is: 4

Question **2**

Correct

Mark 0.15 out of 0.15

A company is developing its weekly production plan. The company produces two products, A and B, which are processed in two departments. Setting up each batch of A requires $90 of labour while setting up a batch of B costs $60. Each unit of A generates a profit of $30 while a unit of B earns a profit of $25. The company can sell all the units it produces. The data for the problem are summarized below.

	Hours required by		
Operation	A	B	Hours
Cutting	5	4	92
Welding	4	1	48

The decision variables are defined as:

Xi = the amount of product i produced (where X_1 = Product A, X_2 = Product B)
Yi = 1 if Xi > 0 and 0 if Xi = 0

What is the appropriate value for M_2 in the linking constraint for product B?

- a. 48
- b. 4
- c. 1
- d. 23 ✔

The correct answer is: 23

Question 3

Incorrect

Mark 0.00 out of 0.10

A company will be able to obtain a quantity discount on component parts for its four products, X_1, X_2, X_3 and X_4, if it produces beyond certain limits. To get the X1 discount it must produce more than 50 X_1's. It must produce more than 60 X_2's for the X_2 discount, 70 X_3's for the X_3 discount and 80 X_4's for the X_4 discount. How many decision variables are required in the formulation of this problem?

- a. 16 ✖
- b. 12
- c. 4
- d. 8

The correct answer is: 12

Question 4

Correct

Mark 0.15 out of 0.15

A company is developing its weekly production plan. The company produces two products, A and B, which are processed in two departments. Setting up each batch of A requires $50 of labour while setting up a batch of B costs $70. Each unit of A generates a profit of $17 while a unit of B earns a profit of $21. The company can sell all the units it produces.

The decision variables are defined as:

Xi = the amount of product i produced (where X_1 = Product A, X_2 = Product B)
Yi = 1 if Xi > 0 and 0 if Xi = 0

What is the objective function for this problem?

- a. MAX: 17 X_1 + 21 X_2 - 50 Y_1 - 70 Y_2 ✔
- b. MIN: 33 Y_1 + 49 Y_2
- c. MIN: 17 X_1 + 21 X_2 - 50 Y_1 - 70 Y_2
- d. MAX: 33 X_1 + 49 X_2

The correct answer is: MAX: 17 X_1 + 21 X_2 - 50 Y_1 - 70 Y_2

Question 5

Incorrect

Mark 0.00 out of 0.10

An ILP problem has 6 binary decision variables. How many possible integer solutions are there to this problem?

a. 6
b. 32 ✖
c. 12
d. 64

The correct answer is: 64

Question **6**

Correct

Mark 0.10 out of 0.10

One approach to solving integer programming problems is to ignore the integrality conditions and solve the problem with continuous decision variables. This is referred to as:

a. quickest solution method.
b. LP satisficing.
c. LP approximation.
d. LP relaxation. ✔

The correct answer is: LP relaxation.

Question **7**

Incorrect

Mark 0.00 out of 0.10

For minimization problems, the optimal objective function value to the LP relaxation provides what for the optimal objective function value of the ILP problem?

a. A lower bound.
b. An alternative optimal solution.
c. An additional constraint for the ILP problem.
d. An upper bound. ✖

The correct answer is: A lower bound.

Question **8**

Correct

Mark 0.20 out of 0.20

A production company wants to ensure that if Product 2 is produced, production of Product 2 not exceed production of Product 1. Which of the following constraints enforce this condition?

a. $X_2 \leq X_1$ ✔

b. $X_2 \leq M_2Y_2$, $X_2 \leq Y_2X_1$

c. $X_2 \leq M_2X_1$

d. $X_2 \geq M_2Y_2$

The correct answer is:
$X_2 \leq X_1$

◄ Quiz Week 3

Jump to...

Quiz Week 5 ►

MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 26 August 2022, 8:11 PM
State	Finished
Completed on	Friday, 26 August 2022, 8:23 PM
Time taken	11 mins 26 secs
Grade	**1.00** out of 1.00 (**100**%)

Print friendly format

Question **1**

Correct

Mark 0.10 out of 0.10

Maximal flow problems are converted to transshipment problems by

a. adding extra supply nodes

b. requiring integer solutions

c. connecting the supply and demand nodes with a return arc ✔

d. adding supply limits on the supply nodes

The correct answer is: connecting the supply and demand nodes with a return arc

Question **2**

Correct

Mark 0.10 out of 0.10

The number of constraints in network flow problems is determined by the number of

a. supplies.

b. demands.

c. nodes. ✔

d. arcs.

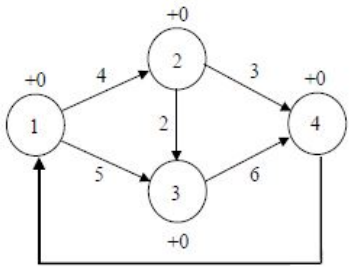
The correct answer is: nodes.

Question **3**

Correct

Mark 0.20 out of 0.20

What is the objective function in the following maximal flow problem?



a. MAX X_{14}

b. MIN X_{41}

c. MAX X_{41} ✔

d. MAX $X_{12} + X_{13} + X_{23} + X_{24} + X_{34}$

The correct answer is: MAX X_{41}

Question **4**

Correct

Mark 0.10 out of 0.10

The arcs in a network indicate all of the following except?

a. constraints ✔

b. routes

c. paths

d. connections

The correct answer is: constraints

Question **5**

Correct

Mark 0.10 out of 0.10

How many constraints are there in a transportation problem which has 6 supply points and 5 demand points? (ignore the non-negativity/integer constraints)

a. 5

b. 11 ✔

c. 30

d. 6

The correct answer is: 11

Question **6**

Question 6

Correct

Mark 0.10 out of 0.10

How could a network be modified if demand exceeds available supply?

a. remove the extra demand arcs

b. add a dummy supply ✔

c. add a dummy demand

d. add extra supply arcs

The correct answer is: add a dummy supply

Question 7

Correct

Mark 0.10 out of 0.10

A factory which ships items through the network would be represented by which type of node?

a. random

b. decision

c. supply ✔

d. demand

The correct answer is: supply

Question 8

Correct

Mark 0.10 out of 0.10

A maximal flow problem differs from other network models in which way?

a. arcs have unlimited capacity

b. multiple supply nodes are used

c. arcs have limited capacity ✔

d. arcs are always two directional

The correct answer is: arcs have limited capacity

Question 9

Correct

Mark 0.10 out of 0.10

The right hand side value (constraint) for the ending node in a shortest path problem has a value of

a. 1

b. -1

c. 0

d. 2

The correct answer is: 1

◄ Quiz Week 4

Jump to...

Quiz Week 6 ►

MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 2 September 2022, 11:19 AM
State	Finished
Completed on	Friday, 2 September 2022, 11:33 AM
Time taken	13 mins 54 secs
Grade	**0.80** out of 1.00 (**80**%)

Print friendly format

Question **1**

Correct

Mark 0.10 out of 0.10

Which of the following is true of "What if?" analysis?

a. "What if?" analysis is an efficient optimisation technique.

b. It is not very useful when working with non mathematical models.

c. "What if?" analysis is useful in creating a well-defined problem statement.

d. A well-designed spreadsheet facilitates "What if?" analysis. ✔

The correct answer is: A well-designed spreadsheet facilitates "What if?" analysis.

Question **2**

Correct

Mark 0.10 out of 0.10

When the objective function can increase without ever contacting a constraint, the LP model is said to be

a. multi-optimal.

b. unbounded. ✔

c. open ended.

d. infeasible.

The correct answer is: unbounded.

Question **3**

Correct

Mark 0.10 out of 0.10

The specification or description of the relationship between the dependent and independent variables is generally called

- a. a constraint.
- b. a declaration.
- c. a mathematical model.
- d. a function. ✔

The correct answer is: a function.

Question **4**

Correct

Mark 0.10 out of 0.10

The symbols X_1, Z_1 , in a mathematical formulation of a decision problem are all examples of

- a. decision variables. ✔
- b. constraints.
- c. objectives.
- d. parameters.

The correct answer is: decision variables.

Question **5**

Incorrect

Mark 0.00 out of 0.10

What is the goal in optimisation?

- a. All the answer choices are correct.
- b. Find the best decision variable values that satisfy all constraints.
- c. Find the values of the decision variables that satisfy all constraints. ✖
- d. Find the values of the decision variables that use all available resources.

The correct answer is: Find the best decision variable values that satisfy all constraints.

Question **6**

Correct

Mark 0.10 out of 0.10

Which of the following fields of management science finds the optimal method of using resources to achieve the objectives of a business?

- a. Discriminant analysis

b. Simulation

c. Mathematical programming ✔

d. Regression

The correct answer is: Mathematical programming

Question 7

Correct

Mark 0.10 out of 0.10

When do alternate optimal solutions occur in LP models?

a. When a constraint is perpendicular to a level curve.

b. Alternate optimal solutions indicate an infeasible condition.

c. When a constraint is parallel to a level curve. ✔

d. When a constraint is parallel to another constraint.

The correct answer is: When a constraint is parallel to a level curve.

Question 8

Correct

Mark 0.10 out of 0.10

A common objective in a product mix problem is

a. minimizing cost. ✔

b. maximizing cost.

c. maximizing production volume.

d. minimizing production time.

The correct answer is: minimizing cost.

Question 9

Correct

Mark 0.10 out of 0.10

What are the three common elements of an optimization problem?

a. objectives, resources, goals.

b. decision variables, profit levels, costs.

c. decision variables, constraints, an objective. ✔

d. decision variables, resource requirements, a profit function.

The correct answer is: decision variables, constraints, an objective.

Question **10**

Incorrect

Mark 0.00 out of 0.10

The first step in formulating a linear programming problem is

a. Stating the objective function as a linear combination of the decision variables.

b. Identify any upper or lower bounds on the decision variables.

c. Understanding the problem.

d. Identifying the decision variables. ✖

e. Stating the constraints as linear combinations of the decision variables.

The correct answer is: Understanding the problem.

◄ Quiz Week 5

Jump to...

Quiz Week 7 ►

MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 9 September 2022, 2:03 PM
State	Finished
Completed on	Friday, 9 September 2022, 2:14 PM
Time taken	11 mins 25 secs
Grade	**1.00** out of 1.00 (**100**%)

Print friendly format

Question **1**

Correct

Mark 0.10 out of 0.10

The EOQ model

a. minimizes both ordering and holding costs.

b. considers total cost. ✔

c. All of the alternatives are correct.

d. determines only how frequently to order.

The correct answer is: considers total cost.

Question **2**

Correct

Mark 0.10 out of 0.10

Annual purchase cost is included in the total cost in

a. the quantity discount model. ✔

b. all inventory models.

c. the EOQ model.

d. the economic production lot size model.

The correct answer is: the quantity discount model.

Question **3**

Correct

Mark 0.10 out of 0.10

For the EOQ model, which of the following relationships is incorrect?

a. As the order quantity increases, annual holding cost increases.
b. As the order quantity increases, the number of orders placed annually decreases.
c. As the order quantity increases, annual ordering cost increases. ✔
d. As the order quantity increases, average inventory increases.

The correct answer is: As the order quantity increases, annual ordering cost increases.

Question **4**

Correct

Mark 0.10 out of 0.10

The objective of the EOQ with quantity discounts model is to

a. balance annual ordering and holding costs.
b. determine the minimum order quantity required for the maximum discount.
c. minimize the sum of annual carrying, holding, and purchase costs. ✔
d. minimize annual purchase cost.

The correct answer is: minimize the sum of annual carrying, holding, and purchase costs.

Question **5**

Correct

Mark 0.10 out of 0.10

What costs should a manager consider when setting order points?

a. stockout costs and purchase costs
b. ordering costs and stockout costs
c. holding costs and stockout costs ✔
d. holding costs and purchase costs

The correct answer is: holding costs and stockout costs

Question **6**

Correct

Mark 0.10 out of 0.10

When the reorder point r exceeds Q*, the difference is

a. one or more outstanding orders ✔
b. safety stock

c. backorders

d. surplus inventory

The correct answer is: one or more outstanding orders

Question 7

Correct

Mark 0.30 out of 0.30

ZIP Electric Bike Company buys special batteries to power its most popular model, called the Zippy. The company is selling about 100,000 Zippies per year. The batteries cost $25 each. ZIP figures that the impact of holding inventory is 10% per year and placing an order costs the company $120. Using the economic order quantity model, what is the optimal order quantity for the batteries?

Select one:

a. 447.2

b. 309.8

c. 894.4

d. 3098.4 ✔

The correct answer is: 3098.4

Question 8

Correct

Mark 0.10 out of 0.10

For the inventory model with planned shortages, the optimal order quantity results in

a. annual holding cost = annual ordering cost.

b. annual ordering cost = annual holding cost + annual backordering cost. ✔

c. annual ordering cost = annual holding cost - annual backordering cost.

d. annual holding cost = annual backordering cost.

The correct answer is: annual ordering cost = annual holding cost + annual backordering cost.

◄ Quiz Week 6

Jump to...

Quiz Week 8 ►

MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 16 September 2022, 3:49 PM
State	Finished
Completed on	Friday, 16 September 2022, 4:04 PM
Time taken	15 mins
Grade	**0.00** out of 1.00 (**0**%)

Print friendly format

Question **1**

Incorrect

Mark 0.00 out of 1.00

FastPrint prints calendars and diaries, and wishes to determine how many copies of diary to print for the coming year. There is a fixed setup cost of $1,000 and the incremental profit per diary is $0.45. Any unsold copies of the diary can be sold to a recycling plant at a $0.55 loss per copy.

Sales for the diaries are estimated to be normally distributed. The most likely sales volume is 10,000 copies and they believe there is a 5% chance that sales will exceed 15,000.

(Hint: This is a single-period order quantity model)

Calculate the following:

1. The Standard deviation corresponding to a 5% chance that sales will exceed 15,000: ✖
2. Cost of overestimating demand: ✖
3. Cost of underestimating demand: ✖
4. What is the optimal probability of no shortage i.e. P(D < Q*): ✖
5. What is the z value corresponding to the P(D < Q*): ✖

How many copies should be printed? 10,380 ✖

◄ Quiz Week 7

Jump to...

Quiz Week 9 ►

MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 23 September 2022, 10:21 AM
State	Finished
Completed on	Friday, 23 September 2022, 10:34 AM
Time taken	13 mins 24 secs
Grade	**0.70** out of 1.00 (**70**%)

Print friendly format

Question **1**

Correct

Mark 0.10 out of 0.10

Every non-probabilistic method has a weakness for decision making. Which of the following is incorrect regarding a method and its weakness?

a. The maximin method ignores potentially large payoffs.

b. The maximax method ignores potentially large losses.

c. The minimax regret method can lead to inconsistent decisions.

d. All the statements are correct. ✔

The correct answer is: All the statements are correct.

Question **2**

Correct

Mark 0.10 out of 0.10

Decision analysis supports all but one of the following goals. Which goal is not supported?

a. Help ensure selection of good outcomes. ✔

b. Analyse decision problems logically.

c. Incorporate problem uncertainty.

d. Help make good decisions.

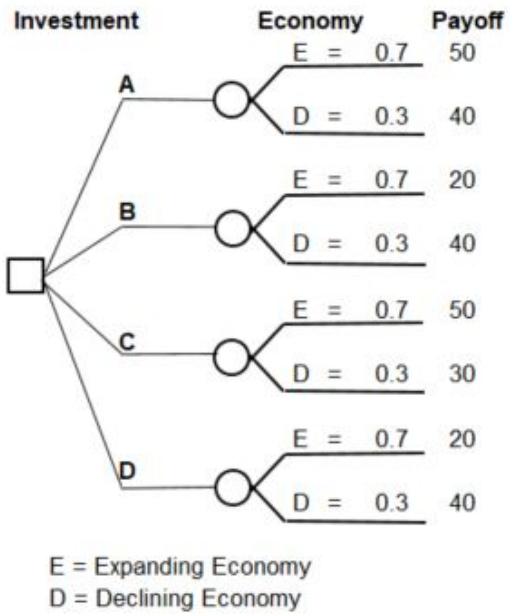
The correct answer is: Help ensure selection of good outcomes.

Question **3**

Incorrect

Mark 0.00 out of 0.15

An investor is considering 4 investments, A, B, C, D. The payoff from each investment is a function of the economic climate over the next 2 years. The economy can expand or decline. The following decision tree has been developed for the problem. The investor has estimated the probability of a declining economy at 30% and an expanding economy at 70%. What is the expected monetary value for the investor's problem?



- a. 53
- b. 36 ✖
- c. 47
- d. 42

The correct answer is: 47

Question **4**

Incorrect

Mark 0.00 out of 0.15

An investor is considering 4 investments, A, B, C and leaving his money in the bank. The payoff from each investment is a function of the economic climate over the next 2 years. The economy can expand or decline. The following payoff matrix has been developed for the decision problem. The investor has estimated the probability of a declining economy at 40% and an expanding economy at 60%. . What decision should be made according to the expected monetary value decision rule?

Payoff Matrix		
Probability	0.4	0.6
	Economy	
Investment	Decline	Expand
A	20	90
B	30	80
C	-10	100
Bank	40	50

- a. B ✖

b. A

c. Bank

d. C

The correct answer is: A

Question 5

Correct

Mark 0.10 out of 0.10

The decision rule which determines the maximum payoff for each alternative and then selects the alternative associated with the largest payoff is the _____

a. minimin decision rule.

b. minimax regret decision rule.

c. maximax decision rule. ✔

d. maximin decision rule.

The correct answer is: maximax decision rule.

Question 6

Correct

Mark 0.10 out of 0.10

A square node in a decision tree is called a _____node.

a. random

b. chance

c. event

d. decision ✔

The correct answer is: decision

Question 7

Correct

Mark 0.10 out of 0.10

Which of the following is a goal of decision analysis?

a. Avoiding decisions leading to bad outcomes.

b. Reduce the role of luck in a decision.

c. Ensure decisions lead to good outcomes.

d. Help individuals make good decisions. ✔

The correct answer is: Help individuals make good decisions.

Question **8**

Correct

Mark 0.10 out of 0.10

The _____ in a decision problem represent factors that are important to the decision maker.

- a. criteria ✔
- b. payoffs
- c. states of nature
- d. alternatives

The correct answer is: criteria

Question **9**

Correct

Mark 0.10 out of 0.10

The _____correspond to future events that are not under the control of the decision maker.

- a. criteria
- b. alternatives
- c. states of nature ✔
- d. payoffs

The correct answer is: states of nature

◄ Quiz Week 8

Jump to...

Quiz Week 10 ►

MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 21 October 2022, 7:56 PM
State	Finished
Completed on	Friday, 21 October 2022, 8:11 PM
Time taken	14 mins 56 secs
Grade	**0.40** out of 1.00 (**40**%)

Print friendly format

Question **1**

Correct

Mark 0.10 out of 0.10

Which of the following best describes queuing theory?

a. The study of service times.

b. The study of waiting lines. ✔

c. The evaluation of service time costs.

d. The study of arrival rates.

The correct answer is: The study of waiting lines.

Question **2**

Correct

Mark 0.10 out of 0.10

The number of arrivals to a store follows a Poisson distribution with mean λ = 10/hour. What is the mean inter-arrival time?

a. 10 hours

b. 6 seconds

c. 6 minutes ✔

d. 10 minutes

The correct answer is: 6 minutes

Question **3**

Incorrect

Mark 0.00 out of 0.10

In a queue following a Markov distribution, the exponential probability distribution is used to model which of the following characteristics?

- a. Service rate.
- b. Server utilization.
- c. Arrival rate. ✖
- d. Inter-arrival time.

The correct answer is: Inter-arrival time.

Question 4

Incorrect

Mark 0.00 out of 0.20

A store currently operates its service system with 1 operator. Arrivals follow a Poisson distribution and service times are exponentially distributed.

Given the following information:

- Arrival rate : 6 per hour
- Service time: 7.5 minutes
- Number of servers: 1

What is average amount of time a customer would spend in the store?

- a. 2.25
- b. 0.375 ✖
- c. 0.50
- d. 3.00

The correct answer is: 0.50

Question 5

Correct

Mark 0.10 out of 0.10

Which of the following would be the main reason to employ queuing theory?

- a. To reduce customer wait time in line. ✔
- b. To reduce service times.
- c. To reduce worker idle time in line.
- d. To generate more arrivals to the system.

The correct answer is: To reduce customer wait time in line.

Question 6

Question 6

Correct

Mark 0.10 out of 0.10

If the service rate decreases as the arrival rate remains constant, then, in general

a. service costs increase.

b. customer dissatisfaction decreases.

c. customer waiting time decreases.

d. customer waiting time increases. ✔

The correct answer is: customer waiting time increases.

Question 7

Incorrect

Mark 0.00 out of 0.20

A store currently operates its service system with 1 operator. Arrivals follow a Poisson distribution and service times are exponentially distributed.

Given the following information:

- Arrival rate : 6 per hour
- Service time: 7.5 minutes
- Number of servers: 1

What is the probability that a customer can go directly into service without waiting in line?

a. 0.25

b. 0.00

c. 0.75 ✖

d. 1.00

The correct answer is: 0.25

Question 8

Incorrect

Mark 0.00 out of 0.10

Which of the following notations represent the queue at a doctor's waiting room where the arrival and service processes follow a distribution with known mean and variance?

a. M/G/1

b. G/M/1 ✖

c. G/G/1

d. M/M/1

The correct answer is: G/G/1

◄ Quiz Week 10

Jump to...

FIT3158 Assignment Case I Specification ►