

4.2.1 Decision Tables

Computer Science (9608)

May/June 2015.P41/P42

3 A shop gives some customers a discount on goods totalling more than \$20. The discounts are:

- 5% for goods totalling more than \$100
- 5% with a discount card
- 10% with a discount card and goods totalling more than \$100

(a) Complete the decision table.

Conditions	goods totalling more than \$20	Y	Y	Y	Y	N	N	N	N
	goods totalling more than \$100	Y	Y	N	N	Y	Y	N	N
	have discount card	Y	N	Y	N	Y	N	Y	N
Actions	No discount								
	5% discount								
	10% discount								

[4]

(b) Simplify your solution by removing redundancies.

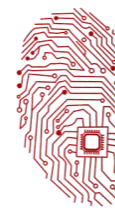
Conditions	goods totalling more than \$20								
	goods totalling more than \$100								
	have discount card								
Actions	No discount								
	5% discount								
	10% discount								

[5]

(c) The simplified table produced in part (b) is used as a design for program code.

The following identifier table shows the parameters to be passed to the function `Discount`. This function returns the discount amount as an integer.





4.2.1 Decision Tables

Identifier	Data type
GoodsTotal	INTEGER
HasDiscountCard	BOOLEAN

Write program code for this function.

[6]

May/June 2015.P43

3 An insurance company calculates the cost of car insurance from a basic price.

The driver may:

- get a discount on the basic price of the insurance
- have to pay an extra charge

The decision is arrived at as follows:

- for a driver aged 25 or over:
 - 5% discount if no previous accident
 - no discount if a previous accident
- for a driver under the age of 25:
 - 5% discount if no previous accident and licence held for 3 or more years
 - no discount if a previous accident but licence held for 3 or more years
 - no discount if no previous accident but licence held for less than 3 years
 - 10% extra charge if a previous accident and licence held for less than 3 years

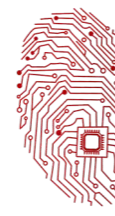
(a) Complete the decision table.

Conditions	Age under 25	Y	Y	Y	Y	N	N	N	N
	Previous accident	Y	Y	N	N	Y	Y	N	N
	Licence held for 3 or more years	Y	N	Y	N	Y	N	Y	N
Actions	10% extra charge								
	No discount								
	5% discount								

[6]

(b) Simplify your solution by removing redundancies.





4.2.1 Decision Tables

Conditions	Age under 25								
	Previous accident								
	Licence held for 3 or more years								
Actions	10% extra charge								
	No discount								
	5% discount								

[3]

(c) The simplified table produced in part (b) is used as a design for program code.

The following identifier table shows the parameters to be passed to the function `CostPercentageChange`. This function returns the percentage change from the basic price as an integer. A discount should be shown as a negative integer. An extra charge should be shown as a positive integer.

Identifier	Data type	Comment
<code>DriverAge</code>	INTEGER	Age of driver in years
<code>HadAccident</code>	BOOLEAN	Whether driver has had a previous accident
<code>YearsLicenceHeld</code>	INTEGER	Number of years the driver has held licence

Write program code for this function.

[6]

