



Skills for Computing

SAMPLE TIME CONSTRAINED ASSESSMENT

Answer ALL questions.

Clearly cross out surplus answers.

Time: 4 hours

The maximum mark for this paper is 50.

A formula sheet is provided at the end of the question paper.

IMPORTANT INFORMATION

Reference material is not permitted in this assessment.

Candidates are allowed to use a scientific calculator during this examination.

Graph paper will be provided by the centre.

Answer ALL questions

Question 1

The total of all sales in a shop to the nearest \$50 for the days Monday to Saturday are shown.

Day	Sales (\$)
Monday	300
Tuesday	250
Wednesday	400
Thursday	500
Friday	450
Saturday	600

- a) Draw a bar chart to represent the data in the table. 6
- b) Calculate the average amount taken over each day to 2dp. Show your working. 2
- c) Calculate the percentage of week's sales that were taken on the Saturday. Show your working. 2

Total 10 Marks

Question 2

- a) Explain the difference between primary and secondary data. 2
- b) Two errors that can occur when collecting and recording data are a rounding error and a transfer error.
 - i) What is a rounding error? 1
 - ii) What is a transfer error? 1
 - iii) Describe **one** additional type of error. 2
- c) Data about students marks in a test, produce a normal distribution.
 - i) Describe what is meant by a normal distribution using marks in a test as an example. 3
 - ii) What would it mean if the marks gave a uniform distribution? 1

Total 10 Marks

Question 3

The shop compares the amount taken over two weeks. The table shows the results.

Day	Week 1 Sales (\$)	Week 2 Sales (\$)
Monday	300	150
Tuesday	250	200
Wednesday	400	450
Thursday	500	100
Friday	450	550
Saturday	600	720

- a) Rank the results and calculate the Spearman rank correlation coefficient for this data. Give your answer to two decimal places. 8
- b) Comment on your result to part a) 2

Total 10 Marks

Question 4

The shop wants to expand to sell different products. The managers need to decide on the products they want to introduce.

- a) Describe right-brained thinking **and** how it can be used to help make this decision. 3
- b) Describe left-brained thinking and how it can be used to help make this decision. 3
- c) Explain how the following TASC cycle phases can be used by the managers to help make this decision.
 - i) Gather / organise 2
 - ii) Evaluate 2

Total 10 marks

Question 5

- a) Why is it important to engage in life-long learning? 1
- b) A student produces a piece of research but does not include references.
 - i) Explain why the student needs to include references. Give THREE (3) points for full marks. 3
 - ii) Describe what is meant by speed reading. 2

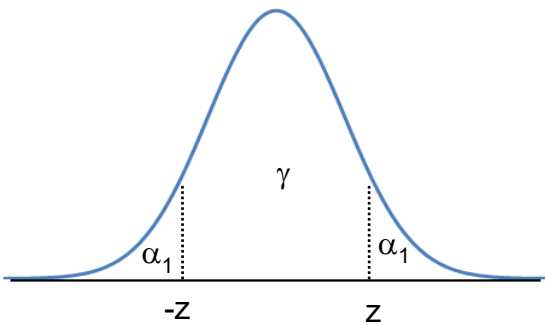
Marks

- c)** Give an example of positive feedback **and** one example of constructive feedback **4**
you have received about your studies and explain how you acted upon it. Both
examples need to be different.

Total 10 Marks

End of paper

1. Percentage points of the normal distribution



α_1	15.87%	15%	5.00%	2.50%	2.28%	1.00%	0.50%
Φ	68.27%	70.00%	90.00%	95.00%	95.45%	98.00%	99.00%
z	1.0000	1.0364	1.6449	1.9600	2.0000	2.3263	2.5758

2. Formulae

Spearman's Rank Correlation (with no ties)

$$r_s = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

The Pearson Correlation Function

$$R = r = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{\sqrt{(n \sum x_i^2 - (\sum x_i)^2)(n \sum y_i^2 - (\sum y_i)^2)}}$$

Simple Linear Regression

$$\hat{y} = mx_i + c$$

is the least SSE straight line where:

$$m = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sum(x_i - \bar{x})^2}$$

$$m = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{n \sum x_i^2 - (\sum x_i)^2}$$

$$c = \bar{y} - m\bar{x}$$

The Coefficient of Determination

$$R^2 = r^2 = \frac{\sum(\hat{y} - \bar{y})^2}{\sum(y - \bar{y})^2}$$