



Professional Qualification in COMPUTING AND INFORMATION SYSTEMS Level 4 Diploma

Question 1

(a) The number of printing errors ,xx, on each of the 20 pages of a newspaper was recorded. The summarised results were as follows:

$$\Sigma xx = 160 \quad \Sigma xx^2 = 720$$

Calculate the standard deviation of the number of errors. (6 marks)

(b) **Illustrate** what is meant by the term 'standard Normal distribution'. (6 marks)

(c) 11 employees were asked how far they travelled to work each day. Their responses (in kilometres) were:

1.7, 1.9, 2.2, 2.5, 3.1, 3.4, 3.5, 3.5, 4.0, 4.1, 4.5

Calculate the lower quartile, upper quartile, median and the inter-quartile range for this set of results. (8 marks)

Question 2

(a) **Discuss** the purpose and application of statistical methods. (10 marks)

(b) **Explain** the value of statistical analysis to commercial organisations. (10 marks)

Question 3

The HR department of a company conducted a survey of the ages, in years, of their employees. The results were:

45, 46, 21, 55, 36, 25, 32, 62, 55, 48, 38, 22, 39, 40, 46, 36, 58, 55, 38

Using suitable intervals, **illustrate** a histogram of this data and **describe** the skew. (20 marks)

Question 4

Discuss the differences in the interpretation of the mean, median and mode averages under different distributions with varying skew, varying kurtosis, and the presence of outliers. (20 marks)

Question 5

(a) **Discuss** the design principles for the creation of **TWO** data collection instruments. (10 marks)

(b) **Discuss** the approaches to determining the most appropriate research method for a given research question. (10 marks)