

**University Examinations 2011/2012**

**FIRST YEAR, FIRST SEMESTER EXAMINATION FOR DIPLOMA/CERTIFICATE IN  
BUSINESS ADMINISTRATION**

**HDC 0102: INTRODUCTION TO BUSINESS STATISTICS**

**DATE: DECEMBER 2011**

**TIME: 1½HOURS**

**INSTRUCTIONS:** Answer question *one* and any other *two* questions

**QUESTION ONE – (30 MARKS)**

- (a) Define the following terms:
- (i) Statistics (2 Marks)
  - (ii) Regression (2 Marks)
  - (iii) Trend (2 Marks)
  - (iv) Correlation (2 Marks)
- (b) Explain the importance of studying statistics. (4 Marks)
- (c) Table 1 shows marks scored by 90 students in a test

Table 1

Marks	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 - 39
No. of Students	2	13	31	23	14	6	1

Determine:

- (i) The modal class (1 Mark)
  - (ii) The mean (4 Marks)
  - (iii) The median (5 Marks)
- (d) For a sample of 100 bulbs the time for each bulb to burn was recorded. Table 2 shows the results of the measurement.

Table 2

Time	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 – 44	4 - 49
No. of Bulbs	6	19	12	26	21	12	4

Using 32 as the assumed mean calculate the standard deviation.

(8 Marks)

**QUESTION TWO – (20 MARKS)**

(a) Define the following:

(i) Inferential statistics

(2 Marks)

(ii) Descriptive statistics

(2 Marks)

(b) Table 3 shows the life expectancy, in hours of 106 bulbs.

Table 3

Expectancy (Hours)	Frequency (f)
90-94	5
95-99	14
100-104	16
105-109	17
110-114	24
115-119	12
120-124	11
125-129	4
130-134	2
135-139	1

(i) Determine the modal frequency

(1 Mark)

(ii) On the grid provided draw, a cumulative curve to show this information.

(8 Marks)

(c) Using the graph in (b) above estimate:

(i) The median

(2 Marks)

(ii) The quartile deviation

(4 Marks)

**QUESTION THREE – (20 MARKS)**

(a) Define frequency

(2 Marks)

(b) Distinguish between nominal and interval scales of measurement.

(4 Marks)

(c) For the data 16, 5, 7, 13, 2, 9, 3, 20, 13, 6, 5 find the quartile deviation.

(4 Marks)

(d) The masses, to the nearest kilogram, of 200 students were recorded as in table below.

Table

Mass (Kg)	41 – 50	51 - 55	56 - 65	66 – 70	71 - 85
Frequency	21	62	55	50	12

(i) Draw a histogram to represent this information.

(8 Marks)

(ii) On the same diagram (i above) draw a frequency polygon.

(2 Marks)

**QUESTION FOUR – (20 MARKS)**

- (a) Define range (2 Marks)
- (b) Two boys have mean height of 123cm and three girls have a mean height of 121cm. a man joins the group and their mean height becomes 125cm. Find:
- (i) The mean height of the five children. (5 Marks)
- (ii) The height of the man (3 Marks)
- (c) Table 4 shows marks scored by 40 students in a test

Table 4

Marks	25 -34	35-44	45-54	55-64	65-74	75-84	85-94
No. of Students	2	6	10	14	4	3	1

Taking 59.5 to be the assumed mean calculate:

- (i) Mean (6 Marks)
- (ii) Variance (2 Marks)
- (iii) Standard deviation (2 Marks)

**QUESTION FIVE – (20 MARKS)**

- (a) Define the following terms:
- (i) Variable (2 Marks)
- (ii) Sample (2 Marks)
- (iii) Probability (2 Marks)
- (b) Calculate a retail price index for 2010 for the following commodities based on 2009 as the base year. (4 Marks)

	2008 Index	2009 Index	Weight
Iron	100	112.5	9
Lead	100	95.5	5
Tin	100	96.7	8
Zinc	100	108.5	3

- (c) The mean of three numbers 8,  $x$  and  $y$  is 5 and their variance is 6. Find the values of  $x$  and  $y$ , arrange the numbers in descending order. (10 Marks)