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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2017/2018 ACADEMIC YEAR TWO**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF BUSINESS AND ECONOMICS**

**FOR THE DEGREE OF BACHELOR OF BUSINESS MANAGEMENT**

**COURSE CODE: BBM 221**

**COURSE TITLE: BUSINESS STATISTICS**

**EXAMINATION DURATION: 3 HOURS**

**DATE: 06/08/18 TIME: 09.00-12.00 PM**

**INSTRUCTION TO CANDIDATES**

* **The examination has FIVE (5) questions**
* **Question ONE (1) is COMPULSORY**
* **Choose any other TWO (3) questions from the remaining FOUR (4) questions**
* **Use sketch diagrams to illustrate your answer whenever necessary**
* **Do not carry mobile phones or any other written materials in examination room**
* **Do not write on this paper**

**This paper consists of FIVE (5) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

1. What is Business statistics? **[2 marks]**
2. Differentiate between descriptive and inferential statistics. **[2 marks]**
3. State Three reasons why a researcher may prefer to study a sample instead of the whole population. **[3 marks]**
4. Given a set of data; 2, 9,8,3,5 Calculate the standard deviation. **[3 marks]**
5. A chemical fertilizer company wishes to determine the extent of correlation between ‘quantity of compound X used’ and ‘lawn growth’ per day. The results are tabulated below:

|  |  |  |
| --- | --- | --- |
| Lawn | CompoundX(g) | LawnGrowth(mm) |
| A | 1 | 3 |
| B | 2 | 3 |
| C | 4 | 6 |
| D | 5 | 8 |

1. Find the Pearson’s correlation between the three variables. **[5 marks]**
2. State three advantages and three disadvantages of a Questionnaire **[6 marks]**
3. Simplify 81/6 $×4$1/3  **[2 marks]**

 321/6 $×16$1/12

 321/6 $×16$1/12

1. What are the uses of statistics?  **[5 marks]**
2. Express as a single logarithm log 4 +log6 **[2 marks]**

**QUESTION TWO**

* 1. A random sample of 51 people was asked to record the number of miles they travelled by car in a given week. The distances to the nearest mile, are shown below.

42 93 46 52 72 77 53 41 48 86

62 54 85 60 58 43 58 43 58 74

52 82 78 86 94 63 72 63 72 44

78 56 80 44 52 74 68 82 57 47

1. Construct a stem and leaf diagram to represent these data. **[4 marks]**
2. Find the median and the quartiles of this distribution. **[4 marks]**
	1. A panel of two judges A and B graded dramatic performance by independently awarding marks as follows:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Performance No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Marked by A | 36 | 32 | 34 | 31 | 32 | 32 | 35 | 38 |
| Marked by B | 35 | 33 | 31 | 30 | 34 | 32 | 36 | ? |

* 1. Obtain the correlation coefficient r **[4 marks]**
	2. Use the least squares method to obtain the regression equation of y on x. **[3 marks]**
	3. Find the mark awarded by judge B to performance 8. **[3 marks]**
	4. Mention two Demerits of the Arithmetic mean **[2 marks]**

**QUESTION THREE**

1. Statistics CAT scores of 12 students are as follows:-

10, 22, 24, 27, 31, 33, 39, 40, 42, 43, 44, 45

Draw a box and whisker plot to represent the above scores **[4 marks]**

1. Habiba gets quiz grades of 79, 82, and 69. She gets a 65 on her final exam. Find the weighted mean if the quizzes each count for 10% and the final exam counts for 70% of the final grade. **[3 marks]**
2. Calculate the harmonic mean of the numbers: 13.5, 14.5, 14.8, 15.2 and 16.1 **[3 marks]**
3. The table below shows the sales for Bidii electronics established in the late 1998.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| Sales ( Sh X 1000) | 5 | 9 | 14 | 18 | 21 | 27 |

* 1. Draw a scatter graph to represent this data. **[3 marks]**
	2. Find r2 **[3 marks]**
	3. Find the equation of the line of best fit using the linear regression formula. **[2 marks]**
	4. Predict the sales for the year 2006, giving your answer to the nearest Sh. **[2 marks]**

**QUESTION FOUR**

1. Give a brief description of each of the sampling techniques listed below
2. Random sampling **[2 marks]**
3. Stratified sampling **[2 marks]**
4. Systematic sampling **[2 marks]**
5. A family weekly expenditure on its house mortgage, food and fuel is as follows.

Expenditure amount

Mortgage 300

Food 225

Fuel 75

1. Draw a pie chart to display the information **[4 marks]**
2. State five limitation of statistics  **[5 marks]**
3. Solve using substitution **[3 marks]**

3x +4y =10

2x + 7y =11

1. Integrate the equation below **[2 marks]**

 Y=6x3 +2x+5

**QUESTION FIVE**

The following data relates to daily bill on consumption of a certain commodity for 60 households

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Daily Bills(ksh) | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
| No. of households | 6 | 7 | 11 | 10 | 6 | 5 | 9 | 3 | 3 |

1. Calculate the mean **[4 marks]**
2. Calculate the median **[3 marks]**
3. Calculate the standard deviation **[3 marks]**
4. Calculate the coefficient of skewness **[4 marks]**
5. Comment on the skewness of this distribution **[2 marks]**
6. Calculate the coefficient of variation **[4 marks]**