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**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS FOR DIPLOMA IN COMMUNITY HEALTH AND DEVELOPMENT**

**SECOND YEAR, SECOND SEMESTER 2016/2017**

**KISUMU LEARNING CENTER**

**COURSE CODE: HDC 2223**

**COURSE TITLE: INTRODUCTION TO BIOSTATISTICS**

**EXAM VENUE:**

**DATE: EXAM SESSION:**

**TIME: 2 HOURS**

**Instructions:**

1. **Answer all questions in section A and any other 2 questions in Section B.**
2. **Candidates are advised not to write on the question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

**SECTION A: ANSWER ALL THE QUESTIONS (30 Marks)**

1. a) Define the following terms as used in biostatistics; (2 marks each)
2. Discrete data
3. Continuous data
4. biostatistics
5. Nominal data
6. The table below shows the height measured in the nearest cm of 54 clients

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Height  (cm) | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 |
| Frequency | 8 | 12 | 14 | 10 | 8 | 2 |

1. State the median class (1 marks)
2. Calculate the median height (2 marks)
3. Calculate the mean height (2 marks)
4. Calculate the variance ( 2 marks)
5. Calculate the standard deviation (2 marks)
6. Calculate the mode height (2 marks)
7. Data from two samples indicated the following results. Compute the coefficient of variation for these data.(5 marks)

|  |  |  |
| --- | --- | --- |
| **Variable** | **Sample 1** | **Sample 2** |
| Age  Mean Weight  Standard Deviation | 25 years  145kgs  10kgs | 11 years  80kgs  10kgs |

3. The probability that a male student will pass biostatistics is 0.7 while that of a female student is 0.9.If two students are chosen at random from a class of biostatistics, and given an exam, one at a time. What is the probability that;

1. Both are males and will pass an exam (3 Marks)
2. A male and female will fail an exam (3 Marks)

**SECTION B (30 marks)**

**Answer any TWO questions from this section**

1. The following table represents the results of ages of refugees from a study in Dadaab refugee camp Kenya.

|  |  |
| --- | --- |
| **Age Interval** | **Frequency** |
| 10–14 | 5 |
| 15–19 | 19 |
| 20- 24 | 10 |
| 25-29 | 13 |
| 30-34 | 4 |
| 35-39 | 4 |
| 40-44 | 2 |
|  |  |

Calculate the;

1. Mean (3 marks)
2. Median age (3 marks)
3. Mode age (3 marks)
4. Variance (3 marks)
5. Standard deviation (3 marks)
6. The following are the daily fat intake (grams) of a group of 150 adult males.

22 62 77 84 91 102 117 129 137 14142 56 78 73 96 105 117 125 135 14337 69 82 93 93 100 114 124 135 14230 77 81 94 97 102 119 125 138 14246 89 88 99 95 100 116 121 131 15263 85 81 94 93 106 114 127 133 15551 80 88 98 97 106 119 122 134 15152 70 76 95 107 105 117 128 144 15068 79 82 96 109 108 117 120 147 15367 75 76 92 105 104 117 129 148 16462 85 77 96 103 105 116 132 146 16853 72 72 91 102 101 128 136 143 16465 73 83 92 103 118 127 132 140 16768 75 89 95 107 111 128 139 148 16868 79 82 96 109 108 117 130 147 153

(a) Form a frequency distribution, including relative frequencies and cumulative relative frequencies. (5 marks)

(b) Plot the frequency polygon and investigate the symmetry of the distribution. (5 marks)

(c) Plot the cumulative frequency graph and find the 25th and 75th percentiles. (5 marks)

1. A researcher who is interested in the demographic characteristics of the members of a community collected the ages indicated below:-

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | 18 | 36 | 18 | 42 | 16 | 26 | 24 | 22 | 26 | 21 | 19 | 28 | 21 | 28 |
| 33 | 38 | 40 | 20 | 28 | 24 | 18 | 22 | 43 | 29 | 28 | 33 | 34 | 42 | 40 |

1. Construct a frequency a frequency distribution table showing relative frequency and cumulative frequency (6 marks)
2. Construct a bar graph and frequency polygon for the above data (4 marks)
3. Identify the median, mode and mean using the frequency distribution table constructed in i.(5 marks)