**STA 314 Assignment**

**1.** Nwodo Traveller conducts an annual poll of subscribers in order to determine the best places to stay throughout the nation. Table 1 is a sample of nine Nigerian hotels from their most recent poll. The rating of each room in a hotel ranges from 1 (lowest price) to 4 (highest price). The overall score includes subscriber’s evaluation of each hotel’s rooms, service, location/atmosphere, and public areas; higher overall scores correspond to a higher level of satisfaction.

**TABLE 1: Rating for Nine Places to Stay in Nigeria**

**Room Number Overall**

**Name of Hotel State Rating of Rooms Score**

Hotel A Edo 2 18 83.6

Hotel B Rivers 4 166 86.3

Hotel C Ogun 1 54 77.8

Hotel D Ekiti 2 47 76.8

Hotel E Abia 2 326 80.9

Hotel F Edo 3 45 73.7

Hotel G Lagos 3 120 85.5

Hotel H Kano 1 10 76.9

Hotel I Kwara 2 22 90.6

1. How many variables are in the data set? (**1 mark**)
2. Which variables are qualitative and which variables are quantitative? (**2 mark**)
3. Classify the variables Room Rating, Number of Rooms and Overall Score according to their scale of measurements (1**⅟2 marks**)
4. What is the average number of rooms for the nine hotels? (**2 marks**)
5. Compute the average overall score. (**2 marks**)
6. What is the percentage of hotels with a room rating of 2? (**2 marks**)
7. What method of data collection did Nwodo Travellers use in collecting the data? (**2 marks**)

**2.** Data for the number of units produced by a production employee during the most recent 20 days are shown.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 160 | 170 | 181 | 156 | 176 |
| 148 | 198 | 179 | 162 | 150 |
| 162 | 156 | 179 | 178 | 151 |
| 157 | 154 | 179 | 148 | 156 |

1. What is the range for the data (**1.5 marks**)
2. Present the data in a grouped frequency table, starting with 140-149. (**4 marks**)
3. Draw a cumulative relative frequency curve for the data. (**5 marks**)

**3.** A psychologist developed a new test of adult intelligence. The test was administered to 20 individuals and the following data were obtained.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 70 | 72 | 75 | 64 | 58 | 83 | 80 | 82 |
| 76 | 75 | 68 | 65 | 57 | 78 | 85 | 72 |

1. Construct a stem-and-leaf display for the data
2. Comment on the symmetry of the distribution of data.

**4.** Distinguish between the following:

1. Population and Sample
2. Variable and Experiment
3. Discrete and Continuous variable
4. Parameter and Statistic

**5.** Distinguish between the following, with an example each

1. Probability and Non-probability sampling methods
2. Stratified and Cluster Sampling
3. Quota and Snowball sampling

**6.** Write short notes on the following scales of measurement, with an example each.

a.) Nominal scale

b.) Ordinal scale

c.) Interval scale

d.) Ratio scale

**7.** The table below contains data on two variables that were collected in an observational study in a computer manufacturing plant. In this plant, the finished computer is rated by its processing speed. The variables reported are the computer processing speed and storage size (GB). We would like to find a model relating processing speed to storage size.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Processing speed | Y | 5 | 4 | 6 | 8 | 4 | 5 | 7 | 9 | 7 | 6 |
| Storage size | X | 85 | 86 | 88 | 89 | 90 | 95 | 98 | 90 | 94 | 100 |

Compute the covariance between computer processing speed against storage size.

**8.** The data below represent the net worth (#’M) 10 randomly selected farmers in a community in Lagos.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ID** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Net worth** | 100 | 109 | 96 | 97 | 108 | 124 | 101 | 112 | 106 | 120 |

1. Find the mean and median of the Net worth data.
2. Estimate the variance of the Net worth data
3. Compute standard deviation of the distribution of Net worth.
4. Compute the coefficient of variation for the Net worth data.