



Please mark all your answers on the answer sheet provided to you. Only the answer sheet will be graded. Choose the best answer for each of the following questions. Good Luck

1- In a study of customers feedback on a new product. If a researcher selects customers using random number. This kind of sampling techniques is known as

- a) Random b) Systematic c) Stratified d) Cluster

2- The measure of central tendency used for nominal date type is

- a) range b) mode c) median d) variance

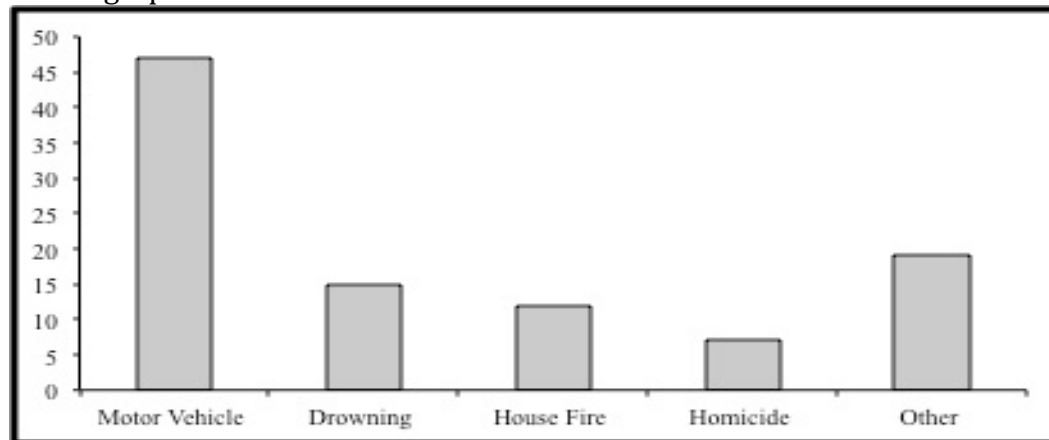
3- Find the stem part of 82?

- a) 82 b) 2 c) 28 d) 8

4- Group of students was given two types of teaching techniques. By the end of the semester, their final grades were reported. Type of teaching techniques is a(an) variable.

- a) independent b) parameter c) dependent d) statistic

5- The graph below is



- a) Ogive graph b) Time series graph c) Bar chart d) Pareto chart

Use the following data set to answer questions (6 – 9): 8, 3, 5, 2, 8, 4, 2, 6, 7, 5, 8

6- Find the mean, \bar{X}

- a) 4 b) 8.25 c) 5 d) 5.27

7- Find the midrange, MR

- a) 3 b) 5 c) 6 d) 4

8- Find the mode.

- a) 2, 5, 8 b) 2, 5 c) 8 d) 5, 8

9- The data set is said to be

- a) no mode b) a bimodal c) a multimodal d) an unimodal

10- The score of 35 is 4 standard deviations below the mean, then the value of

- a) $Z = 0$ b) $Z > 0$ c) $Z < 0$ d) $Z = 35$

11- For what type of data Pie graph can be used?

- a) Discrete b) Continuous c) Categorical d) a and c

12- Find Z if $X = 38$, $\bar{X} = 29$ and $S^2 = 4$

- a) -2.25 b) 4.5 c) 2.25 d) -4.5

13- If the majority of data values fall to the left of the mean, the relationship between measures of central tendency is

- a) mode $>$ median $>$ mean b) mode = median = mean
c) mode $<$ median $<$ mean d) mode \neq median \neq mean

The frequency distribution of a sample taken from 60 different types of cars is shown below. Answer questions (14 - 17)

Type	Toyota	Nissan	BMW	Hyundai	GMC
Frequency	18	12	11	10	9

14- The type of this distribution is frequency distribution.

- a) binominal b) categorical c) grouped d) ungrouped

15- Find the percentage of BMW class.

- a) 18.33% b) 16.67% c) 35% d) 90.90%

16- The total number of frequencies of cars is indeed the

- a) Stratified sample b) Sample size c) Random sample d) Cluster sample

17- Find the degree of GMC class.

- a) 46.29° b) 15° c) 54° d) 12.86°

The distribution of heights (c.m.) of 135 individuals is shown below.

Height	131 - 144	145 - 158	159 - 172	173 - 186	187 - 200
Frequency	6	?	51	38	15

Answer questions (18 - 21)

18- Find the missing frequency of [145 - 158]?

- a) 6 b) 17 c) 15 d) 25

19- Find the class boundaries of [131 - 144].

- a) 130.5 - 143.5 b) 130.5 - 144.5 c) 131.5 - 144.5 d) 131.5 - 143.5

20- Find the class midpoint of [173 - 186].

- a) 13 b) 14 c) 179.5 d) 6.5

21- How many individuals have height less than 172.5 c.m.?

- a) 82 b) 51 c) 104 d) 38

22- is an example of a ordinal variable.

- a) Education level b) Number of children c) Heights of buildings d) Color of cars

Use the following data set: 1, 24, 23, 26, 28, 22, 20, 55, 23 to answer questions (23 – 25)

23- Find the third quartile, Q_3 .

- a) 21 b) 23.5 c) 27 d) 37.5

24- Find the interquartile range, IQR .

- a) -14 b) 14 c) 6 d) 4

25- Find an outlier if any.

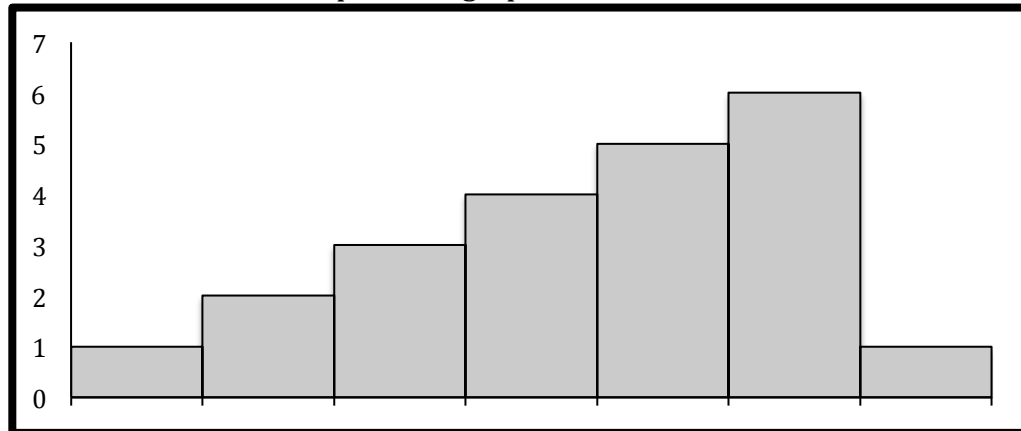
- a) 1 b) 1, 55 c) 55 d) no outliers

26- Find the standard deviation using the available information:

$$\sum X = 174, \sum X^2 = 3240, n = 11$$

- a) 6.66 b) 6.98 c) 44.33 d) 48.76

27- The distribution shape of the graph below is



- a) right skewed b) left skewed c) symmetrical d) bimodal

28- The best graph to represent the number of sold phones in the past 5 weeks is

- a) Pareto chart b) Time series graph c) Pie graph d) Bar chart

29- Find the class width of the class [14.67 – 17.42].

- a) 2.76 b) -2.75 c) 16.05 d) 2.75

30- Given two data sets A and B such that $\bar{X}_A = 138$, $S_A = 16$ and $\bar{X}_B = 85$, $S_B = 11$. Which data set is more variable than the other?

- a) Data set A is more variable than B. b) Both data sets are the same.
c) Data set B is more variable than A. d) It cannot be determined.

Formulas:

$$\text{Percentage: } p = \frac{f}{\Sigma f} * 100 \%$$

$$\text{Degree: } D = \frac{f}{\Sigma f} * 360$$

$$\text{Mean: } \bar{x} = \frac{\Sigma x}{n}$$

$$\text{Midrange: } MR = \frac{\min + \max}{2}$$

$$\text{Weighted mean: } \bar{x}_w = \frac{\Sigma xw}{\Sigma w}$$

$$\text{Range: } R = \max - \min$$

$$\text{Variance: } s^2 = \frac{\Sigma x^2 - \left(\frac{(\Sigma x)^2}{n}\right)}{n-1}$$

$$\text{Standard deviation: } s = \sqrt{s^2}$$

$$\text{Coefficient of variation: } CVar(x) = \frac{s}{\bar{x}} * 100 \%$$

$$\text{z-score: } z = \frac{x - \bar{x}}{s}$$

$$\text{Interquartile Range: } IQR = Q_3 - Q_1$$

$$\text{Non-outliers interval: } [Q_1 - (1.5)(IQR), Q_3 + (1.5)(IQR)]$$

Answer Key Form A

- 1- a
- 2- b
- 3- d
- 4- a
- 5- c
- 6- d
- 7- b
- 8- c
- 9- d
- 10- c
- 11- c
- 12- b
- 13- c
- 14- b
- 15- a
- 16- b
- 17- c
- 18- d
- 19- b
- 20- c
- 21- a
- 22- a
- 23- c
- 24- c
- 25- b
- 26- b
- 27- b
- 28- b
- 29- a
- 30- c