

MAT 161

COMPILED BY TEMPLE (MAT 161 VLAP EXERCISE 2023/2024)

1. If the \emph(mean) of -1,0,9,3,K and 5 is 2, where K is a constant, obtain the median of the set of numbers.
A. 6
B. $\frac{3}{2}$
C. Impossible
D. 1
2. The following distribution gives the estimate total population of the UK for the year 1977 in million Age: 0-9,10-19,20-29,30-39,40-49,50-59,60-69,70-79,80-89 with Freq: 10.1, 9.3, 7.9, 7.6, 6.7, 6.7, 6.0, 3.8, 1.2. Find the mean age.
A. 30.56
B. 34.55
C. 59.31
3. A data grouped as follows 20-29, 30-39, 40-49, and 50-59 with the frequencies 18, 34, 58 and 48 respectively. The inter-quartile range is most accurately approximated to
A. 5
B. 15
C. -5
D. -15
4. The mathematica command for calculating the mean of the data 130, 84, 142, 127, 125, 97 is
A. `Mean[{130},{84},{142},{127},{125},{97}]`
B. `Mean{130,84,142,127,125,97} //`
C. `mean:[130,84,142,127,125,97] //`
D. `Mean[{130,84,142,127,125,97}]`
5. Example of discrete variable
A. Masses in kg of sticks patients in an hospital
B. The production capacity of an industrial machine
C. Measuring the litres of palm oil in a drum
D. The number of new babies in a maternity ward
6. The length of 10 iron rods are given as follow: 12, 13, 14, $15\sqrt{2}$, 17, 12, 11, 15, 16, $14\sqrt{2}$. Find the mean length
A. 14.5

- B. 13.5
C. 15.2
D. 12.5
7. Find the standard deviation of the given data sets 7, 47, 8, 42, 47, 95, 42, 96, 3
A. 31.09
B. 30.09
C. 32.09
D. 29.09
8. The age of 10 children are given as follows; 12, 13, 15, 15, 17, 12, 11, 15, 16, 14. Find the median age.
A. 12.5
B. 14.5
C. 13.5
D. 15.5
9. In symmetrical distribution if $Q_1 = 3$, and $Q_3 = 9$ then median is
A. 12
B. 6
C. 3
D. 9
10. What is the value of K_m i.e the Fourth Moment Coefficient of Kurtosis for normal distribution
A. $K_m = 0.236$
B. $K_m = 3$
C. $K_m = 0.263$
D. $K_m = -3$
11.Variables take infinite numbers of values between two fixed points on a scale
A. Discrete
B. Continuous
C. Ordinal
D.
12. Stem and Leaf is one of the quick way of finding And of a distribution
A. Median and Mode
B. Median and skewness
C. Mean and median
D. Mean and Mode

13. The range of the data set given 20-29, 30-39, 40-49, and 50-59 is
- A. 35
 - B. 30
 - C. 40
 - D. 39
14. A data grouped as follows: 20-29, 30-39, 40-49, and 50-59 with the frequencies 18, 34, 58 and 42 respectively. The semi inter-quartile range is most accurately approximated to
- A. -7.5
 - B. 7.5
 - C. -15
 - D. 15
15. The measure of location is
- A. Variance
 - B. Moment
 - C. Mode
 - D. Mean Deviation
16. The average of 4 children is 15 years. If the age of their parents are added, the average age is 25. What is the age of the father if He is 4 years older than his wife?
- A. 46
 - B. 47
 - C. 48
 - D. 43
17. The range of the set of data 5,4,4,3,3,3,3 is
- A. 3
 - B. 4
 - C. 2
 - D. 7
18. are data in which an individual or group is/are involved in its design phase
- A. Primary data
 - B. Discrete data
 - C. Secondary data
 - D. Quantitative data
19. The mean of the data x: 3, 2, 3, 4, 5, 6 with the frequency 2, 8, 24, 52, 31, 11 respectively

- A. 40.6
- B. 3.5
- C. 4.50
- D. 4.06

20. Calculate the standard deviation of the data set: 1001, 1003, 1005, 1007, 1009

- A. $\sqrt[3]{8}$
- B. 8
- C. $2\sqrt{2}$
- D. $2\sqrt{8}$

21. The mean of the data X: 1, 2, 3, 4, 5, 6 with Frequencies 2, 8, 24, 52, 31, 11 respectively

- A. 4.06
- B. 3.5
- C. 4.06
- D. 40.6

22. The median of the set of numbers 5, 10, 10, 7, 6, 9, 12, 8 is

- A. 8.5
- B. 10.5
- C. 9.5
- D. 7.5

23. Using the value of Mean, Mode and Median, describe the skewness of the given sets of data: 5, 8, 12, 17, 12, 14, 6, 8, 12, and 10

- A. None of the above
- B. Positively Skewed
- C. Negatively Skewed
- D. Symmetric

24. The number of items purchased by the first 11 customer at a shop this morning were 6, 2, 13, 5, 1, 7, 2, 11, 16, 20 and 15. Find the number of items purchased by the 12th customer given that the first 12 customers at the shop purchased a total 111 items.

- A. 7
- B. 13
- C. 12
- D. 13.5

25. The mean deviation of the data set: 5, 1, 7, 2, 11, 16 is

- A. 0
- B. 2.33

- C. 4.33
- D. 7

26.aims at identifying the nature of the relationship between the variables, measures it and makes possible prediction about the values of the dependent variable from the known values of the independent variables
- A. Regression
 - B. Correlation
 - C. Kurtosis
 - D. Skewness
27. What is the model of 'c', given the regression line for the least square method as $y = mx + c$.
- A. $\sum y + m \sum x$
 - B. $(\sum y)/n + m((\sum x)/n)$
 - C. $\sum y - m \sum x$
 - D. $(\sum y)/n - m((\sum x)/n)$
28. Which of the following can be estimated from a histogram
- A. Median
 - B. Cumulative Frequency
 - C. Mode
 - D. Upper Class Boundary
29. The distribution with the value higher than k_m for a normal distribution implies that the distribution is
- A. Mesokurtic
 - B. Extra-mesokurtic
 - C. Platykurtic
 - D. Leptokurtic
30. The breakdown of weekly expenditure in Naira of a house wife are rice = N600, garri = N200, provisions = N140, meat = N260, vegetable = N120, beans = N250 and transport = N230. The sectorial angle for rice and beans is
- A. 140° and 260°
 - B. 200° and 60°
 - C. 250° and 60°
 - D. 120° and 50°

31. Which of the following is not a measure of scale
- A. Measure Deviation
 - B. Decile
 - C. Percentile Deviation
 - D. Standard Deviation
32. Which of the following is a method of fitting regression lines?
- A. Least Square
 - B. Chi Square
 - C. Spearman
 - D. Linear Equation
33. The range of the data set given by 20-29, 30-39, 40-49 and 50-59
- A. 35
 - B. 30
 - C. 40
 - D. 39
34. The correlation coefficient $p(x, y)$ is calculated by.

Option A

☐
$$\frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{(n \sum x^2 + (\sum x)^2)(n \sum y - (\sum y)^2)}}$$

Option B

☐
$$\frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{(n \sum x^2 - (\sum x)^2) + (n \sum y - (\sum y)^2)}}$$

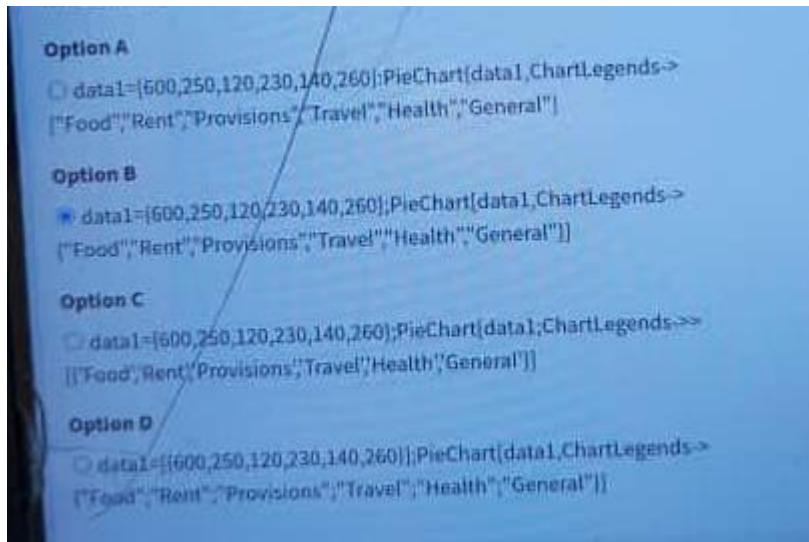
Option C

☒
$$\frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{(n \sum x^2 - (\sum x)^2)(n \sum y - (\sum y)^2)}}$$

Option D

☐
$$\frac{n \sum xy - (\sum x)(\sum y)}{(n \sum x^2 - (\sum x)^2)(n \sum y - (\sum y)^2)}$$

35. The breakdown of the weekly expenditure of a worker is Food = 600, Rent = N250, Provision = N120, Travel = N230, Health = N140 and General = N260. Write the mathematica command for plotting this on a pie chart.



36. Four bottles have masses 2, 4, 6 and 8 kg. Calculate, correct to 3 significant figures, the variance of the marks
- A. 5.00
 - B. 4.00
 - C. 6.66
 - D. 25.0
37. The extent to which a set of data spread around its mean or average value is:
- A. Measures of central tendency
 - B. Variance
 - C. Dispersion
 - D. Measure of tendency
38. A systematic method of transforming data into meaningful information is
- A. Sampling
 - B. Methodology
 - C. Analysis
 - D. Statistics
39. A data set grouped as follows: 10-19, 20-29, 30-39, 40-49 with the frequencies 18, 34, 58, 42 respectively would have the upper class boundary of the median class to be
- A. 49.5
 - B. 39.5

- C. 19.5
- D. 29.5

40. Given a class interval: 2.5-3.5, the lower class boundary is

- A. 2.0
- B. 3.55
- C. 2.45
- D. 4.0

41. The ages, in years, of 5 boys are 5, 6, 6, 8, and 10. Calculate, correct to one decimal place, the \emph{standard deviation} of their ages.

- A. 3.2
- B. 1.8
- C. 2.5
- D. 3.0

42. If large values of a variable X causes the Values of another variable Y to be large, the correlation between X and Y would be

- A. Positive
- B. Zero
- C. Negative
- D. Neutral

43. Given the Values for X: 168, 101, 194, 141 and Y: 58, 52, 76, 64. Calculate an estimate for Y when X = 150

- A. 62.286
- B. 26.682
- C. 126.914
- D. 30.186

44. A stem and leaf diagram has the key: 11|4 means 1135. What will 10|7 from the same diagram mean.

- A. 1165
- B. 1065
- C. 1075
- D. 965