

Statistics MCQ Question Bank

First Paper

Statistics, Variable and Concepts of Different Symbols

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1 Basic Concept of Statistics

1. In which scale of measurement, zero is regarded as true zero?
(a) Nominal scale (b) Interval scale (c) Ratio scale (d) Ordinal scale
 2. Which is a discrete variable?
(a) Weight (b) Amount of rainfall (c) Distance (d) Grade in a subject
 3. If $x_1 = 2, x_2 = -3, x_3 = 7$, and $x_4 = 12$, $\sum_{i=1}^4 x_i^2 = ?$
(a) 26 (b) 106 (c) 206 (d) 216
 4. Which one falls in the category of interval scale?
(a) Temperature (b) Speed (c) Distance (d) Film rating
 5. Which one is product of square?
(a) $\prod x_i^2$ (b) $(\prod x_i)^2$ (c) $\sum x_i^2 \times \sum x$ (d) $\sum x_i^2$
 6. For which variable, determining number of terms is not possible?
(a) Discrete variable (b) Continuous variable (c) Quantitative variable (d) Qualitative variable
- Answer the next three question based on the following information.**
A farmer collects growth (in cm) of 10 plants in a month and finds that $\sum x_i = 7$ and $\sum x_i^2 = 15$
7. What is the value of $\sum (x_i + 4)$?
(a) 23 (b) $\sum x_i + 4n$ (c) 22 (d) 11
 8. What is the value of $\sum (x_i - 4)^2$?
(a) 23 (b) 135 (c) 484 (d) 121
 9. If the square of summation is subtracted the sum of square, the value is -
(a) -8 (b) 34 (c) 8 (d) -34
 10. Which one is not an example of ratio scale?
(a) Room no. (b) Income (c) Number of accidents (d) Weight

2 Collection, Organization, and Presentation of Data

3 Measures of Central Tendency

11. Which measure of central tendency is suitable for qualitative variable?
(a) Arithmetic Mean (b) Harmonic Mean (c) Quadratic Mean (d) Mode
12. In presence of negative values, which measure is not usable?
(a) Arithmetic Mean (b) Geometric Mean (c) Quadratic Mean (d) Harmonic Mean
13. What is the arithmetic mean of first n odd natural numbers?
(a) $\frac{n+1}{n}$ (b) n (c) $n+1$ (d) $\frac{n+1}{2}$

14. **Inappropriate for algebraic analysis–**

- i. Median
- ii. Mode
- iii. Geometric Mean

Which one is true?

- (a) i (b) ii (c) i & ii (d) ii & iii

Answer the next two questions based on the following information

Accident	4	6	7	8	9
Frequency	2	0	4	4	1

15. **Fifth Decile is –**

- (a) 0 (b) 8 (c) 7 (d) 6

16. **Which of the following is mode?**

- (a) 4 (b) 8 (c) 0 (d) 7

17. **Which measure gives a value from within the values?**

- (a) Arithmetic Mean (b) Geometric Mean (c) Median (d) Mode

18. **Which one is not a proper measure of central tendency?**

- (a) 2nd Quartile (b) Third Decile (c) 3rd Quintile (d) 110th Percentile

19. **Which measure is not used in determining skewness?**

- (a) Arithmetic Mean (b) Geometric Mean (c) Median (d) Mode

20. **The arithmetic mean of first n natural numbers–**

- (a) $\frac{n}{2}$ (b) $\frac{n+1}{2}$ (c) $\frac{n^2}{2}$ (d) $\frac{n^2-1}{2}$

21. **When is the relationship $AM = HM = GM$ true?**

- (a) All values are equal (b) The values form a geometric progression
(c) The values form an arithmetic progression (d) All values are distinct

22. **In the presence of outlier(s), which measure of central tendency is suitable?**

- (a) Arithmetic mean (b) Median (c) Quadratic mean (d) Power mean

23. **If a rate is defined as $R = \frac{c}{d}$, where c is constant, then which measure is perfect?**

- (a) Weighted arithmetic mean (b) Harmonic mean
(c) Quadratic mean (d) Weighted geometric mean

Answer the next two questions as per the following information.

42 44 59 64 70 72 74 91 94 are 9 values.

24. **What is the 50th percentile?**

- (a) 64 (b) 70 (c) 72 (d) 71

25. **Below which value lie 70 percent values?**

- (a) 42 (b) 44 (c) 59 (d) 74

26. **Which measure might have more than one value?**

- (a) Arithmetic mean (b) Geometric mean (c) Quadratic mean (d) Mode

27. Above which value lie 30% observations?
 (a) 3rd Quartile (b) Median (c) 30th Percentile (d) 70th percentile
28. Arithmetic means of three groups having equal no. of items are 30, 32, and 34. What is the combined mean?
 (a) 30.33 (b) 32.67 (c) 32.00 (d) 33.00
29. In which scale of measurement, zero is regarded as true zero?
 (a) Nominal scale (b) Interval scale (c) Ratio scale (d) Ordinal scale
30. Which is a discrete variable?
 (a) Weight (b) Amount of rainfall (c) Distance (d) Grade in a subject
31. If $x_1 = 2, x_2 = -3, x_3 = 7$, and $x_4 = 12$, $\sum_{i=1}^4 x_i^2 = ?$
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34. For which variable, determining number of terms is not possible?
 (a) Discrete variable (b) Continuous variable (c) Quantitative variable (d) Qualitative variable
- Answer the next three question based on the following information.**
A farmer collects growth (in cm) of 10 plants in a month and finds that $\sum x_i = 7$ and $\sum x_i^2 = 15$
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4 Measures of Dispersion

5 Moments, Skewness, and Kurtosis

39. Which can be used to measure dispersion?
 (a) μ'_2 (b) μ_1 (c) μ_2 (d) μ'_1
40. The formula of coefficient of variance (CV) is –
 (a) $\frac{\mu_2}{n} \times 100$ (b) $\frac{\mu_2}{\mu_1} \times 100$ (c) $\frac{\mu_2}{\bar{x}} \times 100$ (d) $\frac{\mu_3}{\sigma} \times 100$

41. **First moment around zero is –**
 (a) 0 (b) 1 (c) -1 (d) Arithmetic Mean
42. **Which values are used in constructing Box & Whisker Plot?**
 (a) Mode (b) X_L (c) $Q_1 \& Q_3$ (d) $Q_1, Q_2 \& Q_3$
43. **Which might have a negative value?**
 (a) μ_4 (b) μ_3 (c) μ'_2 (d) μ_2
44. **In a symmmatric distribution–**
 i. Arithmetic Mean = Mode = Median
 ii. $Q_2 - Q_1 = Q_3 - Q_2$
 iii. $Q_1 - X_L = X_H - Q_3$
 Which one is true?
 (a) i & ii (b) ii & iii (c) i & iii (d) i, ii & iii
45. **For a data, $Q_3 = 41.6, Q_1 = 17.2, Median = 29, \& AM = 30$; What is Coefficient of skewness?**
 (a) 24.4 (b) 1 (c) 0.03 (d) 29.45
46. **$\sqrt{\beta_1} = -0.23$ implies–**
 (a) Left Skew (b) Symmetry (c) Right Skew (d) Mesokurtic
47. **Which is not included in five number summary?**
 (a) Arithmetic Mean (b) X_H (c) Q_2 (d) Q_3
48. **$\beta_2 = \sqrt{9}$ implies data are–**
 (a) Leptokurtic (b) Platykurtic (c) Mesokurtic (d) Symmetric
49. **2nd Central Moment is –**
 (a) $\mu_2 - \mu'_1$ (b) $\mu_2 + \mu'_1$ (c) $\mu_2 - \mu'^2_1$ (d) $\mu'_2 - \mu'^2_1$

6 Correlation and Regression

7 Time Series

50. **A company is constantly getting greater revenue than previous year; this is–**
 (a) Seasonal Variation (b) General Trend (c) Irregular Variation (d) Cyclic Variation
51. **Which is not a method of finding general trend?**
 (a) Graphical Method (b) Moving Average (c) Semi-Average (d) Moving Median

Answer the next two questions based on the following table:

Year	2007	2008	2009	2010	2011	2012
Sales	5	35	34	40	42	204

52. **In Semi-Average method, what is the 2nd average?**
 (a) 74 (b) 24.67 (c) 95.33 (d) 28

53. **For this data, which method would give the best measure of trend?**

- (a) 3-yearly Moving Average
- (b) 4-yearly Moving Average
- (c) Semi-Average
- (d) Graphical Method

54. **which component of time series represents a natural disaster?**

- (a) Seasonal Variation
- (b) General Trend
- (c) Irregular Variation
- (d) Cyclic Variation

Answer Key:

- | | | | |
|----------------------------|------------------------------|--|---------------------------------|
| 1. (c) Ratio scale | 15. (c) 7 | 29. (c) Ratio scale | 43. (b) μ_3 |
| 2. (d) Grade in a subject | 16. (b) 8 | 30. (d) Grade in a subject | 44. (d) i, ii & iii |
| 3. (c) 206 | 17. (d) Mode | 31. (c) 206 | 45. (d) 29.45 |
| 4. (a) Temperature | 18. (d) 110th Percentile | 32. (a) Temperature | 46. (a) Left Skew |
| 5. (a) $\prod x_i^2$ | 19. (b) Geometric Mean | 33. (a) $\prod x_i^2$ | 47. (a) Arithmetic Mean |
| 6. (b) Continuous variable | 20. (b) $\frac{n+1}{2}$ | 34. (b) Continuous variable | 48. (c) Mesokurtic |
| 7. (a) 23 | 21. (a) All values are equal | 35. (a) 23 | 49. (d) $\mu'_2 - \mu'^2_1$ |
| 8. (a) 23 | 22. (b) Median | 36. (a) 23 | 50. (b) General Trend |
| 9. (d) -34 | 23. (b) Harmonic mean | 37. (d) -34 | 51. (d) Moving Median |
| 10. (a) Room no. | 24. (b) 70 | 38. (a) Room no. | 52. (c) 95.33 |
| 11. (d) Mode | 25. (d) 74 | 39. (c) μ_2 | 53. (a) 3-yearly Moving Average |
| 12. (b) Geometric Mean | 26. (d) Mode | 40. (c) $\frac{\mu_2}{\bar{x}} \times 100$ | 54. (c) Irregular Variation |
| 13. (b) n | 27. (d) 70th percentile | 41. (a) 0 | |
| 14. (c) i & ii | 28. (c) 32.00 | 42. (a) Mode | |