

# Statistics MCQ Question Bank

First Paper

Abdullah Al Mahmud



[www.statmania.info](http://www.statmania.info)

# 1 Basic Concept of Statistics

1. **Who is known as the Father of modern statistics?**  
(a) P.C. Mahalanobis (b) Kazi Motaher Hos-sain (c) Karl Pearson (d) R.A. Fisher
  2. **If  $\sum_{i=1}^{20} x_i^2 = 20$  and  $\sum_{i=1}^{20} x_i = 30$ , what is the value of  $\sum_{i=1}^{20} x_i^2 + \sum_{i=1}^{20} x_i + 100$ ?**  
(a) 130 (b) 200 (c) 230 (d) 2130
  3. **A subset of a population is called—**  
(a) Constant (b) Variable (c) Sample (d) Scale
  4. **How many measurement scales are there?**  
(a) 2 (b) 3 (c) 4 (d) 5
  5. **Which of the following is a continuous variable?**  
(a) Number of goals (b) Natural number  
(c) Summation of Fibonacci series (d) Success rate
  6. **In which scale of measurement, zero is regarded as true zero?**  
(a) Nominal scale (b) Interval scale (c) Ratio scale (d) Ordinal scale
  7. **Which is a discrete variable?**  
(a) Weight (b) Amount of rainfall (c) Distance (d) Grade in a subject
  8. **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
  9. **Which one falls in the category of interval scale?**  
(a) Temperature (b) Speed (c) Distance (d) Film rating
  10. **In which scale of measurement, zero is regarded as true zero?**  
(a) Nominal scale (b) Interval scale (c) Ratio scale (d) Ordinal scale
  11. **Which is a discrete variable?**  
(a) Weight (b) Amount of rainfall (c) Distance (d) Grade in a subject
  12. **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)  $\sum x_i^2$
  13. **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  $\sum x_i^2 = 15$**
14. **What is the value of  $\sum (x_i + 4)$ ?**  
(a) 23 (b)  $\sum x_i + 4n$  (c) 22 (d) 11

15. What is the value of  $\sum (x_i - 4)^2$ ?  
 (a) 23 (b) 135 (c) 484 (d) 121
16. If the square of summation is subtracted the sum of square, the value is -  
 (a) -8 (b) 34 (c) 8 (d) -34
17. 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

18. How many sources of data are there?  
 (a) 5 (b) 4 (c) 3 (d) 2
19. Data obtained through direct observation is called—  
 (a) Primary data (b) Secondary data (c) Original Data (d) Informal data
20. Who invented Stem and Leaf plot?  
 (a) Karl Pearson (b) R.A. Fisher (c) David Cox (d) John Tukey
21. Which rule is suggested by H.G. Sturges for determining number of class (k)?  
 (a)  $K = 1 + 3.322 \log N$  (b)  $K = 1 + 3.222 \log N$  (c)  $K = 1 - 3.222 \log N$  (d)  $K = 1 + 2.332 \log N$
22. To show runs per over in a cricket match, which diagram can be used?  
 (a) Histogram (b) Bar Diagram (c) Ogive (d) Frequency polygon

## 3 Measures of Central Tendency

### 3.1 General Questions

23. How many measure of central tendency are there?  
 (a) 2 (b) 3 (c) 4 (d) 5
24. Which measure of central tendency is suitable for qualitative variable?  
 (a) Arithmetic Mean (b) Harmonic Mean (c) Quadratic Mean (d) Mode
25. In presence of negative values, which measure is not usable?  
 (a) Arithmetic Mean (b) Geometric Mean (c) Quadratic Mean (d) Harmonic Mean
26. 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
27. Fifth Decile is —  
 (a) 0 (b) 8 (c) 7 (d) 6

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

28. Which of the following is mode?  
 (a) 4 (b) 8 (c) 0 (d) 7
29. Which measure gives a value from within the values?  
 (a) Arithmetic Mean (b) Geometric Mean (c) Median (d) Mode
30. Which one is not a proper measure of central tendency?  
 (a) 2nd Quartile (b) Third Decile (c) 3rd Quintile (d) 110th Percentile
31. Which measure is not used in determining skewness?  
 (a) Arithmetic Mean (b) Geometric Mean (c) Median (d) Mode
32. 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
33. In the presence of outlier(s), which measure of central tendency is suitable?  
 (a) Arithmetic mean (b) Median (c) Quadratic mean (d) Power mean
34. 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
35. Which measure might have more than one value?  
 (a) Arithmetic mean (b) Geometric mean (c) Quadratic mean (d) Mode

### 3.2 Arithmetic Mean

36. For grouped data, which formula is correct for Arithmetic Mean?  
 (a)  $\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$  (b)  $\bar{x} = \frac{\sum x_i}{N}$  (c)  $\bar{x} = \frac{\sum f_i x_i}{n}$  (d)  $\bar{x} = \frac{\sum f_i}{N}$
37. Arithmetic mean of the series 2, 12, 22, ..., 92 is—  
 (a) 45 (b) 46 (c) 47 (d) 55
38. What is the arithmetic mean of first n odd natural numbers?  
 (a)  $\frac{n+1}{n}$  (b) n (c) n+1 (d)  $\frac{n+1}{2}$
39. What is the arithmetic mean of first n even natural numbers?  
 (a)  $\frac{n+1}{2}$  (b)  $n + 1$  (c) n (d)  $\frac{n-1}{2}$
40. The arithmetic mean of first n natural numbers—  
 (a)  $\frac{n}{2}$  (b)  $\frac{n+1}{2}$  (c)  $\frac{n^2}{2}$  (d)  $\frac{n^2-1}{2}$
41. 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

### 3.3 Median

42. Median can be determined from the—

- (a) Histogram (b) Frequency curve (c) Ogive (d) Pie Chart

Answer the next two (2) questions based on the following information

Class	$\leq 20$	20-25	25-50	50-60	60-70	$\geq 70$
Frequency	5	10	10	7	5	3
Cumulative Frequency	5	15	25	32	37	40

43. How many values are between 20 and 70?

- (a) 20 (b) 32 (c) 35 (d) 37

44. Which one is the median class?

- (a) 20-25 (b) 25-50 (c) 50-60 (d) 60-70

### 3.4 Partition Values

Answer the next two questions as per the following information.

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

45. What is the 50th percentile?

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

46. Below which value lie 70 percent values?

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

47. Above which value lie 30% observations?

- (a) 3rd Quartile (b) Median (c) 30th Percentile (d) 70th percentile

## 4 Measures of Dispersion

48. Which of the following is the best measure of dispersion?

- (a) Range (b) Mean deviation  
(c) Standard deviation (d) Coefficient of variation

49. What is the minimum possible value of standard deviation?

- (a)  $\infty$  (b) -1 (c) 0 (d) 1

50. For two values, range is found to be 8. What are the values of mean deviation and standard deviation

- (a) (2,4) (b) (4,4) (c) (4,8) (d) (8,8)

51. What is the standard deviation of first 10 natural numbers?

- (a) 2.87 (b) 3.02 (c) 0 (d) 2.78

52. Which measure is unit-free?

- (a) Range (b) Mean deviation  
(c) Standard deviation (d) Coefficient of variation

## 5 Moments, Skewness, and Kurtosis

### 5.1 Moments

53. Which can be used to measure dispersion?  
(a)  $\mu'_2$  (b)  $\mu_1$  (c)  $\mu_2$  (d)  $\mu'_1$
54. 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)  $\frac{\mu_3}{\sigma} \times 100$
55. First moment around zero is –  
(a) 0 (b) 1 (c) -1 (d) Arithmetic Mean
56. Which might have a negative value?  
(a)  $\mu_4$  (b)  $\mu_3$  (c)  $\mu'_2$  (d)  $\mu_2$
57. 2nd Central Moment is –  
(a)  $\mu_2 - \mu'_1$  (b)  $\mu_2 + \mu'_1$  (c)  $\mu_2 - \mu'^2_1$  (d)  $\mu'_2 - \mu'^2_1$
58. First central moment is equal to –  
(a) 1 (b) 0 (c) -1 (d)  $\bar{x} - a$
59. First moment around a is equal to –  
(a) 1 (b) 0 (c) -1 (d)  $\bar{x} - a$
60. The first raw moment about 3 is -5. What is the value of arithmetic mean?  
(a) 2 (b) -2 (c) 0 (d) 8
61. Moments can be–  
i. positive  
ii. not negative  
iii. positive or negative  
Which one is correct?  
(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

### 5.2 Skewness

62. 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
63. In case of positive skewness, which one is correct?  
(a)  $Mean > Median > Mode$  (b)  $Mean < Median < Mode$   
(c)  $Mean = Median = Mode$  (d)  $Mean > Median < Mode$
64. For a symmetrical distribution,  $\beta_1 =$   
(a) 1 (b) -1 (c) 0 (d) 3
65.  $\sqrt{\beta_1} = -0.23$  implies–  
(a) Left Skew (b) Symmetry (c) Right Skew (d) Mesokurtic

### 5.3 Kurtosis

66. The standard deviation of a mesokurtik distribution is 2. What is the value of the 4th central moment?  
(a) 4 (b) 8 (c) 16 (d) 48
67.  $\beta_2 = \sqrt{9}$  implies data are—  
(a) Leptokurtic (b) Platykurtic (c) Mesokurtic (d) Symmetric
68. For a mesokurtik distribution,  $\beta_2 =$  —  
(a) 0 (b) -3 (c) 3 (d) 1

### 5.4 Misc

69. Which is not used in constructing Box & Whisker Plot?  
(a) Mode (b)  $X_L$  (c)  $Q_1 \& Q_3$  (d)  $Q_1, Q_2 \& Q_3$
70. In a symmatric 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
71. Which is not included in five number summary?  
(a) Arithmetic Mean (b)  $X_H$  (c)  $Q_2$  (d)  $Q_3$

## 6 Correlation and Regression

## 7 Time Series

72. A company is constantly getting greater revenue than previous year; this is—  
(a) Seasonal Variation (b) General Trend (c) Irregular Variation (d) Cyclic Variation
73. 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

74. In Semi-Average method, what is the 2nd average?  
(a) 74 (b) 24.67 (c) 95.33 (d) 28
75. 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
76. which component of time series represents a natural disaster?  
(a) Seasonal Variation (b) General Trend (c) Irregular Variation (d) Cyclic Variation

## 8 Published Statistics in Bangladesh

77. Bangladesh Bureau of Statistics collect –

- (a) Official statistics      (b) Non-official statistics(c) Semi-official statistics(d) None of the above

78. Which statistics are published by an NGO?

- (a) Official statistics      (b) Non-official statistics(c) Semi-official statistics(d) None of the above

79. The primary source of official statistics in Bangladesh is –

- (a) WHO                      (b) BBS                      (c) CPD                      (d) UNDP

80. In Bangladesh, a census is usually done every – years

- (a) 20                      (b) 15                      (c) 10                      (d) 12



Answer Key:

- |                             |   |  |                                  |
|-----------------------------|---|--|----------------------------------|
| 1. (d) R.A. Fisher          | 22. (b) Bar Diagram                               | 42. (c) Ogive                              | 62. (d) 29.45                    |
| 2. (c) 230                  | 23. (d) 5   | 43. (b) 32                                 | 63. (a) $Mean > Median > Mode$   |
| 3. (c) Sample               | 24. (d) Mode                                      | 44. (b) 25-50                              | 64. (c) 0                        |
| 4. (c) 4                    | 25. (b) Geometric Mean                            | 45. (b) 70                                 | 65. (a) Left Skew                |
| 5. (d) Success rate         | 26. (c) i & ii                                    | 46. (d) 74                                 | 66. (d) 48                       |
| 6. (c) Ratio scale          | 27. (c) 7   | 47. (d) 70th percentile                    | 67. (c) Mesokurtic               |
| 7. (d) Grade in a subject   | 28. (b) 8   | 48. (c) Standard deviation                 | 68. (c) 3                        |
| 8. (c) 206                  | 29. (d) Mode                                      | 49. (c) 0                                  | 69. (a) Mode                     |
| 9. (a) Temperature          | 30. (d) 110th Percentile                          | 50. (a) (2,4)                              | 70. (d) i, ii & iii              |
| 10. (c) Ratio scale         | 31. (b) Geometric Mean                            | 51. (a) 2.87                               | 71. (a) Arithmetic Mean          |
| 11. (d) Grade in a subject  | 32. (a) All values are equal                      | 52. (d) Coefficient of variation           | 72. (b) General Trend            |
| 12. (a) $\prod x_i^2$       | 33. (b) Median                                    | 53. (c) $\mu_2$                            | 73. (d) Moving Median            |
| 13. (b) Continuous variable | 34. (b) Harmonic mean                             | 54. (c) $\frac{\mu_2}{\bar{x}} \times 100$ | 74. (c) 95.33                    |
| 14. (a) 23                  | 35. (d) Mode                                      | 55. (d) Arithmetic Mean                    | 75. (a) 3-yearly Moving Average  |
| 15. (a) 23                  | 36. (a) $\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$ | 56. (b) $\mu_3$                            | 76. (c) Irregular Variation      |
| 16. (d) -34                 | 37. (c) 47  | 57. (d) $\mu'_2 - \mu'^2_1$                | 77. (a) Official statistics      |
| 17. (a) Room no.            | 38. (b) n   | 58. (b) 0                                  | 78. (c) Semi-official statistics |
| 18. (d) 2                   | 39. (b) $n + 1$                                   | 59. (d) $\bar{x} - a$                      | 79. (b) BBS                      |
| 19. (a) Primary data        | 40. (b) $\frac{n+1}{2}$                           | 60. (b) -2                                 | 80. (c) 10                       |
| 20. (d) John Tukey          | 41. (c) 32.00                                     | 61. (b) i and iii                          |                                  |