Statistics MCQ Question Bank

First Paper

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1 Basic Concept of Statistics

1. **Who is known as the Father of modern statistics?**
   (a) P.C. Mahalanobis (b) Kazi Motaher Hossain (c) Karl Pearson (d) R.A. Fisher

2. **Which is not a function of statistics?**
   (a) Data collection (b) Data organization (c) Analysis (d) Database creation

3. **Which one is an example of an infinite population?**
   (a) Students of Dhaka University (b) Cadets of SCC
   (c) Minor planets in the solar system (d) Red blood cells in a person's body

4. **A researcher collected data on age and income of the people in a city. The variables are –**
   i. bi-variate
   ii. quantitative
   iii. qualitative
   Which one is correct?
   (a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

5. **Which of the following is correct?**
   (a) $\sum_{i=1}^{20} cx_i = nc\sum_{i=1}^{20} x_i$ (b) $\sum_{i=1}^{20} cx_i = nc\sum_{i=1}^{20} x_i$ (c) $\sum_{i=1}^{20} cx_i = c\sum_{i=1}^{20} x_i$ (d) $\sum_{i=1}^{20} cx_i = c^2\sum_{i=1}^{20} x_i$

6. **Which cannot be performed using Univariate data?**
   (a) Central tendency (b) Dispersion (c) Skewness (d) Regression

7. **Cities ranked according to habitability level show – measurement scale**
   (a) Nominal (b) Ratio (c) Interval (d) Ordinal

8. **Which is not an example of shift of scale?**
   (a) $y_i = \frac{x_i}{a}$ (b) $y_i = cx_i$ (c) $y_i = x_i - 2$ (d) $y_i = \frac{cx_i}{d}$

9. **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) 150 (d) 2130

10. **A subset of a population is called–**
    (a) Constant (b) Variable (c) Sample (d) Scale

11. **What is $\sum_{i=1}^{n} bx_i$ equal to?**
    (a) $b\sum_{i=1}^{n} nx_i$ (b) $b\sum_{i=1}^{n} x_i$ (c) $\sum_{i=1}^{n} nx_i$ (d) $bn\sum_{i=1}^{n} x_i$

12. **How many measurement scales are there?**
    (a) 2 (b) 3 (c) 4 (d) 5

13. **Which of the following is a continuous variable?**
    (a) Number of goals (b) Natural number
    (c) Summation of Fibonacci series (d) Success rate

14. **In which scale of measurement, zero is regarded as true zero?**
    (a) Nominal scale (b) Interval scale (c) Ratio scale (d) Ordinal scale

15. **Which measurement scale does height belong to?**
    (a) Nominal (b) Ordinal (c) Interval (d) Ratio

16. **Which is a discrete variable?**
    (a) Weight (b) Amount of rainfall (c) Distance (d) Grade in a subject

17. **Which is a discrete variable?**
    (a) Height of a building (b) Number of cars in a parking lot
    (c) Amount of milk in a container (d) Time taken to complete a task

18. **Which is a discrete variable?**
    (a) Speed of a car (b) Number of students in a class
    (c) Volume of water in a tank (d) Temperature of a room

19. **Which is a discrete variable?**
    (a) Blood pressure (b) Number of books on a shelf
    (c) Length of a river (d) Amount of sugar in a cup

20. **Which is a discrete variable?**
    (a) Shoes sizes available in a store (b) Distance between two cities
    (c) Volume of a gas (d) Weight of a parcel

21. **Which is a discrete variable?**
    (a) Grades on a multiple-choice test (A, B, C, D) (b) Temperature during the day
    (c) Height of a person (d) Time spent on an activity

22. **Which is a discrete variable?**
    (a) Outcomes of rolling a die (b) Speed of a train
    (c) Rainfall in a region (d) Age of a tree

23. **Which is a discrete variable?**
    (a) Counts of people in a room (b) Temperature recorded every hour
    (c) Weight of an animal (d) Height of a plant

24. **Which is a discrete variable?**
    (a) Number of languages spoken by a person (b) Time taken to complete a race
    (c) Length of a road (d) Volume of water in a tank

25. **Which is a discrete variable?**
    (a) Length of a rope (b) Weight of books in a library
    (c) Distance (d) No. of particles in atoms

26. $If x_1 = 2, x_2 = -3, x_3 = 7$, **and** $x_4 = 12, \sum_{i=1}^{4} x_i^2 =?$
    (a) 26 (b) 106 (c) 206 (d) 216

27. **If** $x_1 = 5$, $x_2 = -4$, $x_3 = 9$, **and** $x_4 = 0$, **what is** $\sum_{i=1}^{4} x_i^2$**?**

(a) 82 (b) 97 (c) 107 (d) 122

28. **If** $x_1 = 3$, $x_2 = 2$, $x_3 = -6$, **and** $x_4 = 4$, **what is** $\sum_{i=1}^{4} x_i^2$**?**

(a) 45 (b) 65 (c) 85 (d) 89

29. **If** $x_1 = 4$, $x_2 = 1$, $x_3 = -2$, **and** $x_4 = 3$, **find** $\sum_{i=1}^{4} (x_i^2 + 3)$**?**

(a) 40 (b) 50 (c) 42 (d) 56

30. **If** $x_1 = 4$, $x_2 = -2$, $x_3 = 1$, **and** $x_4 = 5$, **calculate** $\sum_{i=1}^{4} (2x_i^2 - x_i)$**?**

(a) 38 (b) 42 (c) 46 (d) 84

31. **If** $x_1 = 3$, $x_2 = 1$, $x_3 = 0$, **and** $x_4 = 2$, **find** $\sum_{i=1}^{4} x_i^2 - \sum_{i=1}^{4} x_i$**?**

(a) 7 (b) 9 (c) 8 (d) 13

32. **If** $x_1 = 5$, $x_2 = 4$, $x_3 = -3$, **and** $x_4 = 2$, **find** $\sum_{i=1}^{4} (x_i^2 + x_i)$**?**

(a) 58 (b) 62 (c) 66 (d) 72

33. **If** $x_1 = 2$, $x_2 = 3$, $x_3 = -1$, **and** $x_4 = 0$, **calculate** $\sum_{i=1}^{4} (x_i^2 - 2)$**?**

(a) 0 (b) 6 (c) 8 (d) 10

34. $If x_1 = 2, x_2 = 3, x_3 = 4, x_4 = 6$, **and** $x_5 = 5, \sum_{i=1}^{4} x_i^2 =$?

(a) 80 (b) 87 (c) 90 (d) 105

35. **If** $f_i = 3, 5, 7$ **and** $x_i = 2, 4, 7$**; ; what is the value of** $\sum_{i=1}^{3} f_i x_i^2$**?**

(a) 450 (b) 350 (c) 345 (d) 435

36. **If** $x_1 = 3$, $x_2 = -1$, $x_3 = 2$, **and** $x_4 = 0$, **find** $\sum_{i=1}^{4} (x_i^3 + 2x_i)$**?**

(a) 12 (b) 18 (c) 24 (d) 28

37. **If** $x_1 = 4$, $x_2 = 1$, $x_3 = -2$, **and** $x_4 = 3$, **calculate** $\sum_{i=1}^{4} (x_i^2 + 4x_i - 1)$**?**

(a) 16 (b) 24 (c) 34 (d) 50

38. **If $x_1 = 1$, $x_2 = 2$, $x_3 = -3$, and $x_4 = 4$, find $\sum_{i=1}^{4}(3x_i^3 - x_i^2)$?**

(a) 108 (b) 114 (c) -8 (d) 201

39. **If $x_1 = 5$, $x_2 = 0$, $x_3 = -1$, and $x_4 = 2$, determine $\sum_{i=1}^{4}(x_i^3 + x_i^2 + 3)$?**

(a) 173 (b) 174 (c) 164 (d) 172

40. **Capital and profit belong to a variable which is–**

i. Bivariate
ii. Quantitative
iii. Qualitative

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

41. **Which one falls in the category of interval scale?**

(a) Temperature (b) Speed (c) Distance (d) Film rating

42. **Which one falls in the category of nominal scale?**

(a) Height (b) Temperature (c) Gender (d) Age

43. **Which of the following is an example of an ordinal scale?**

(a) Temperature (b) IQ Score (c) Educational Level (d) Weight

44. **Which of the following is not example of a ratio scale?**

(a) Temperature (b) Time (c) Blood Pressure (d) Speed

45. **In which scale of measurement, zero is regarded as true zero?**

(a) Nominal scale (b) Interval scale (c) Ratio scale (d) Ordinal scale

46. **Which is a discrete variable?**

(a) Weight (b) Amount of rainfall (c) Distance (d) Grade in a subject

47. **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) $\sum x_i^2$

48. **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 $\sum x_i^2 = 15$

49. **Which is considered statistics?**

(a) Jaman obtained 75 in statistics (b) Shafiq lives at Road no. 5

(c) Mean monthly income in a city is 60,000 taka (d) Width of a book is 10 cm

50. **What is the value of $\sum(x_i + 4)$ if x ={2,3}?**

(a) 23 (b) 47 (c) 22 (d) 13

51. **If** $x_1 = 2, x_2 = 3, x_3 = 5, x_4 = 7$ **and** $y_1 = 3, y_2 = 4, y_3 = 5, y_4 = 8; \sum_{i=2}^{4} x_i y_i =?$

(a) 14 (b) 201 (c) 93 (d) 117

52. **From the following table,** $\sum_{i=1}^{4} x_i y_i =?$

X	1	5	3	2
Y	20	12	3	14

(a) 14 (b) 201 (c) 99 (d) 109

53. **What is the value of** $\sum(x_i - 4)^2$**?**

(a) 23 (b) 135 (c) 484 (d) 119

54. **If the square of summation is subtracted the sum of square, the value is -**

(a) -8 (b) 34 (c) 8 (d) -34

55. **Which one is not an example of ratio scale?**

(a) Room no. (b) Income (c) Number of accidents (d) Weight

56. **Which one is discrete?**

(a) Weight (b) Amount of rainfall

(c) Temperature (d) No. of member in a family

57. **Which type of scale of measurement are religion and blood group?**

(a) Interval (b) Ratio (c) Nominal (d) Ordinal

Answer the next two questions based on the following information

$$X = 20, 25, 30, 40$$

58. **Find** $\sum(X_i + 10)$

(a) 150 (b) 155 (c) 125 (d) 250

59. $\sum(X_i - 30)^2$

(a) 225 (b) 230 (c) 420 (d) 235

Answer the next two questions based on the following information

$$X = 3, 5, 7, 10$$

60. **Find** $\sum(X_i + 3)$

(a) 28 (b) 32 (c) 37 (d) 40

61. $\sum(X_i - 5)^2$

(a) 16 (b) 33 (c) 12 (d) 8

Answer the next two questions based on the following information

$$X = 6, 8, 10, 12$$

62. **Find** $\sum(X_i - 4)$

(a) 20 (b) 30 (c) 32 (d) 22

63. $\sum(X_i + 2)^2$

(a) 196 (b) 504 (c) 210 (d) 220

Answer the next two questions based on the following information

$$X = 4, 9, 13, 15$$

64. **Find** $\sum(2X_i)$

(a) 68 (b) 70 (c) 82 (d) 74

65. $\sum(X_i - 10)^2$

(a) 71 (b) 80 (c) 85 (d) 92

Answer the next three questions based on the following information.

The values of x_i and f_i are given below:

x_i	1	2	3	4
f_i	2	3	4	1

66. **Find** $\sum_{i=1}^{4} f_i x_i$**.**

(a) 20 (b) 21 (c) 22 (d) 24

67. **Compute** $\sum_{i=1}^{4} f_i x_i^2$**.**

(a) 30 (b) 35 (c) 66 (d) 64

68. **Determine** $\sum_{i=1}^{4} f_i^2 x_i$**.**

(a) 74 (b) 49 (c) 78 (d) 65

Answer the next three questions based on the following information.

The values of x_i and f_i are given below:

x_i	2	4	6	8
f_i	2	2	5	4

69. **Find** $\sum_{i=1}^{4} f_i x_i$**.**

(a) 50 (b) 74 (c) 56 (d) 60

70. **Compute** $\sum_{i=1}^{4} f_i x_i^2$**.**

(a) 256 (b) 274 (c) 476 (d) 300

71. **Determine** $\sum_{i=1}^{4} f_i (x_i - 5)^2$**.**

(a) 61 (b) 48 (c) 52 (d) 58

2 Collection, Organization, and Presentation of Data

72. **How many sources of data are there?**
(a) 5 (b) 4 (c) 3 (d) 2

73. **What is the raw material of research?**
(a) Data (b) Theory (c) Graph (d) Mean

74. **Data obtained through direct observation is called–**
(a) Primary data (b) Secondary data (c) Original Data (d) Informal data

Answer the next THREE questions based on the following information

Radius of 80 trees are recorded and this frequency distribution is constructed.

Radius (cm)	0-10	10-20	20-30	30-40
No. of Trees	20	15	21	24

75. **How many trees have radius between 10 and 30?**
(a) 30 (b) 15 (c) 36 (d) 21

76. **How many trees have radius at least 20?**
(a) 44 (b) 45 (c) 24 (d) 21

77. **What percent of trees have radius between 20 and 40?**
(a) 44% (b) 56% (c) 46% (d) 53%

Answer the next THREE questions based on the following information.

The heights of 100 plants were measured, and this frequency distribution was constructed.

Height (cm)	0-20	20-40	40-60	60-80
No. of Plants	25	30	20	25

78. **How many plants have height between 20 and 60?**
(a) 50 (b) 30 (c) 20 (d) 25

79. **How many plants have height at least 40?**
(a) 50 (b) 45 (c) 40 (d) 25

80. **What percent of plants have height between 20 and 80?**
(a) 80% (b) 75% (c) 60% (d) 50%

Answer the next THREE questions based on the following information.

The weights of 120 fruits were recorded and this frequency distribution was constructed.

Weight (grams)	0-50	50-100	100-150	150-200
No. of Fruits	30	35	25	30

81. **How many fruits weigh at least 100 grams?**
(a) 55 (b) 50 (c) 60 (d) 65

82. **How many fruits weigh less than 100 grams?**
(a) 68 (b) 70 (c) 65 (d) 50

83. **What percent of fruits weigh between 50 and 150 grams?**
(a) 50% (b) 55% (c) 60% (d) 75%

84. **Which formula is used to find angles for Pie Chart?**
(a) $\theta_i = \frac{f_i}{N} \times 100$ (b) $\theta_i = \frac{f_i}{100} \times 360$ (c) $\theta_i = \frac{f_i}{N} \times 360$ (d) $\theta_i = \frac{f_i}{N-1} \times 360$

85. **Who invented Stem and Leaf plot?**
(a) Karl Pearson (b) R.A. Fisher (c) David Cox (d) John Tukey

86. **If all the rats in Sylhet is a population, all the rats in Sylhet Airport is –**
(a) Data (b) Sample (c) Statistics (d) Frequency

87. **Which rule is suggested by H.G. Sturges for determining number of class (k)?**
(a) $K = 1 + 3.322logN$ (b) $K = 1 + 3.222logN$ (c) $K = 1 - 3.222logN$ (d) $K = 1 + 2.332logN$

88. **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

89. **Which statement is correct**
(a) Quartiles are well defined (b) Outliers affect Median
(c) Median is always present in data (d) Quadratic mean is widely used

90. **When is the statement $AM = GM = HM$ true?**
(a) When the values are natural numbers (b) When all the values are equal
(c) When all the values have equal frequency (d) When mode is greater than median

91. **If a value is zero, which measure is not usable?**
(a) Arithmetic Mean (b) Harmonic Mean (c) Geometrtic Mean (d) Mode

92. **How many measure of central tendency are there?**
(a) 2 (b) 3 (c) 4 (d) 5

93. **Which measure of central tendency is suitable for qualitative variable?**
(a) Arithmetic Mean (b) Harmonic Mean (c) Quadratic Mean (d) Mode

94. **In presence of negative values, which measure is not usable?**
(a) Arithmetic Mean (b) Geometric Mean (c) Quadratic Mean (d) Harmonic Mean

95. **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	5	1

96. **Fifth Decile is –**

(a) 0 (b) 8.5 (c) 7.5 (d) 8

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

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

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

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

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

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

100. **Which one is smallest?**

(a) $\sum_{i=1}^{n}(X_i - Median)^2$ (b) $\sum_{i=1}^{n}(X_i - \bar{X})^2$ (c) $\sum_{i=1}^{n}(X_i - \sigma)^2$ (d) $\sum_{i=1}^{n}(X_i - Mode)^2$

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

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

102. **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

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

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

104. **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

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

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

106. **Which relationship is correct?**

(a) $AM \times GM = HM^2$ (b) $AM \times HM = GM^2$ (c) $AM \times HM = GM^3$ (d) $AM \div GM = HM^2$

107. **With negative observations, which cannot be used**

i. Arithmetic Mean
ii. Geometric Mean
iii. Harmonic Mean

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

108. **A good measure of central tendency -**

i. is loosly defined
ii. takes into consideration all values
iii. easily understandable

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

109. **The arithmetic mean and geometric mean of two non-zero positive numbers are 15 and 10, respectively. What is harmonic mean?**

(a) 6.61 (b) 6.67 (c) 7.66 (d) 6.76

3.2 Arithmetic Mean

110. **If $\sum(x_i - k) = 0$, what is the value of k?**

(a) n (b) $\bar{x}$ (c) x (d) $n\bar{x}$

111. **Arithmetic Mean is –**

i. Rigidly defined
ii. Unaffected by sample fluctuation
iii. Suitable for algebraic analysis

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

112. **Find the arithmetic mean:** $6, 9, 12, \cdots, 84$

(a) 40 (b) 45 (c) 50 (d) 55

113. **The arithmetic mean of first 10 natural numbers is:**

(a) 6 (b) 8.5 (c) 5.5 (d) 5.6

114. **Arithmetic Mean of first 25 natural numbers is –**

(a) 12 (b) 13 (c) 14 (d) 26

115. **An equation is: y = 5x + 9. If** $\bar{x} = 20, \bar{y} =?$

(a) 100 (b) 209 (c) 109 (d) 29

116. **Arithmetic Mean of two numbers is 25. If a number is 40, what is the other number?**

(a) 40 (b) 50 (c) 25 (d) 10

117. **The Arithmetic Mean of two numbers is 30. If one number is 40, what is the other number?**

(a) 20 (b) 30 (c) 40 (d) 60

118. **The Arithmetic Mean of two numbers is 35. If one number is 50, what is the other number?**

(a) 25 (b) 20 (c) 40 (d) 70

119. **Number of students in two classes are 50 and 55 and their combined arithmetic mean (AM) of marks is 82. If AM of the first class is 75, what is the AM of the other class?**

(a) 88.36 (b) 88.40 (c) 84.55 (d) 78.33

120. **The summation of deviation of each value from their arithmetic mean is –**

(a) 0 (b) 1 (c) 2 (d) 4

121. **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) $\bar{X} = \frac{\sum f_i}{N}$

122. **Arithmetic mean of the series 2, 12, 22, $\cdots$, 92 is–**

(a) 45 (b) 46 (c) 47 (d) 55

123. **What is the arithmetic mean of first n odd natural numbers?**

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

124. **What is the arithmetic mean of first n even natural numbers?**

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

125. **The arithmetic mean of first n natural numbers-**

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

126. **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 Harmonic Mean

127. **Which formula is correct for harmonic mean?**

(a) $\frac{n}{\sum_{i=1}^{n} \frac{f_i}{x_i}}$ (b) $\frac{f_i}{\sum_{i=1}^{n} \frac{f_i}{x_i}}$ (c) $\frac{\sum f_i}{\sum_{i=1}^{n} \frac{f_i}{x_i}}$ (d) $\frac{\sum f_i}{\sum_{i=1}^{n} \frac{1}{x_i}}$

128. **What is true of harmonic mean?**

i. uses all values in tha data
ii. undefined if the any value is zero
iii. affected by extreme values

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

129. **What is the harmonic mean of these values: 10, 12, 13, 15, 20, 25**

(a) 12.49 (b) 14.93 (c) 14.39 (d) 13.49

130. **A rate is defined as $R = \frac{c}{d}$; c and d are arbitrary numbers. If c is constant, which mean is used?**

(a) Arithmetic Mean (b) Geometric Mean
(c) Harmonic Mean (d) Weighted Geometric Mean

131. **A rate is defined as $R = \frac{c}{d}$; c and d are arbitrary numbers. If d is constant, which mean is used?**

(a) Arithmetic Mean (b) Geometric Mean
(c) Harmonic Mean (d) Weighted Geometric Mean

132. **A rate is defined as $R = \frac{c}{d}$; c and d are arbitrary numbers. If neither c or d is constant, which mean is used?**

i. Weighted Arithmetic Mean
ii. Weighted Harmonic Mean
iii. Harmonic Mean

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

(a) Arithmetic Mean (b) Geometric Mean
(c) Harmonic Mean (d) Weighted Geometric Mean

133. **Which is the respresentation of Harmonic Mean?**

(a) Mean of Reciprocal (b) Reciprocal of Mean

(c) Reciprocal of Mean of Reciprocal (d) None of the above

3.4 Geometric Mean

134. **Which data set is suitable for Geometric Mean?**

(a) $1, -1, 2, 4, 6, 7$ (b) $1, 2, 4, 8, 16, 32$ (c) $0, 1, 2, 3, 4, 6$ (d) $1, 1, 2, 3, 4, 4, 5$

135. **Find geometric mean: 2, 4, 8, 16**

(a) 6.65 (b) 6.56 (c) 5.66 (d) 5.56

Answer the next three questions based on the following information

The data collected in a research is this: 1, 2, 4, 8, 16, 32

136. **Which measure is suitable?**

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

137. **What is the arithmetic mean of the data?**

(a) 8.5 (b) 10 (c) 8 (d) 10.5

138. **What is the geometric mean?**

(a) 8.5 (b) 5.66 (c) 6.55 (d) 16

3.5 Mode

139. **Which of the following may be used to determine mode?**

(a) Histogram (b) Frequency Curve (c) Ogive (d) Frequency Polygon

140. **What is the mode the set: 7, 8, 8, 9, 9, 13, 17, 9, 8, 8**

(a) 17 (b) 9

(c) 8 (d) Cqannot be determined

3.6 Median

141. **Which can be measured from the Ogive?**

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

142. **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	≤ 20	20-25	25-50	50-60	69-70	≥ 70
Frequency	5	10	10	7	5	3
Cumulative Frequency	5	15	25	32	37	40

143. **How many values are between 20 and 70?**

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

144. **Which one is the median class?**

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

145. **What is the median of the following values: 4, 5, 2, 1, 8, 3**

(a) 1.5 (b) 2 (c) 3.5 (d) 4

3.7 Partition Values

Answer the next three questions as per the following information.

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

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

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

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

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

148. **Above which value lie 30% observations?**

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

Answer the next three questions as per the following information.

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

149. **What is the median?**

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

150. **What is the first quartile?**

(a) 42.4 (b) 44.7 (c) 51.5 (d) 64.2

151. **Above which value lie 60% observations?**

(a) 70.4 (b) 72.0 (c) 74.6 (d) 66.4

4 Measures of Dispersion

152. **Which of the following is the best measure of dispersion?**

(a) Range (b) Mean deviation

(c) Standard deviation (d) Coefficient of variation

153. **What is the minimum possible value of standard deviation?**

(a) ∞ (b) -1 (c) 0 (d) 1

154. **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)

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

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

156. **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

157. **Which is not a type of Moments**

(a) Central Moments (b) Raw Moments (c) Corrected Moments (d) Rectified Moments

158. **The second moment around w is –**

(a) $\frac{\sum(x_i-\bar{x})^n}{w}$ (b) $\frac{\sum(x_i-\bar{x})^2}{w}$ (c) $\frac{\sum(x_i-w)^2}{n}$ (d) $\frac{\sum(x_i-w)^n}{2}$

159. **Which relatonship is correct?**

(a) $\mu_1' = \bar{x} + a$ (b) $\mu_1' = \bar{x} - a$ (c) $\mu_2' = \bar{x} + a$ (d) $\mu_1 = \bar{x} - a$

160. **What is formula of rth raw moment for grouped data about a?**

(a) $\frac{\sum f_i(x_i-a)^r}{n}$ (b) $\frac{\sum f_i(x_i-\bar{x})^r}{n}$ (c) $\frac{\sum(x_i-a)^r}{n}$ (d) $\frac{\sum(x_i+a)^r}{n}$

161. **Which quantity uniquely characterizes a distribution?**

(a) Median (b) Quantile (c) Moments (d) Trend

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

162. **Which can be used to measure dispersion?**

(a) μ_2' (b) μ_1 (c) μ_2 (d) μ_1'

163. **The formula of coefficient of variance (CV) is –**

(a) $\frac{\sqrt{\mu_2}}{n} \times 100$ (b) $\frac{\mu_2}{\mu_1} \times 100$ (c) $\frac{\sqrt{\mu_2}}{\bar{x}} \times 100$ (d) $\frac{\mu_3}{\sigma} \times 100$

164. **First moment around zero is –**

(a) 0 (b) 1 (c) -1 (d) Arithmetic Mean

165. **Which moment is equal to zero?**

(a) First raw moment around 1 (b) Second central moment

(c) First central moment (d) Second raw moment around 0

166. **Which might have a negative value?**

(a) μ_4 (b) μ_3 (c) μ_2' (d) μ_2

167. **2nd Central Moment is –**

(a) $\mu_2 - \mu_1'$ (b) $\mu_2 + \mu_1'$ (c) $\mu_2 - \mu_1'^2$ (d) $\mu_2' - \mu_1'^2$

168. **First central moment is equal to –**

(a) 1 (b) 0 (c) -1 (d) $\bar{x} - a$

169. **First moment around a is equal to –**

(a) 1 (b) 0 (c) -1 (d) $\bar{x} - a$

170. **The first raw moment about 3 is -5. What is the value of arithmetic mean?**

(a) 2 (b) -2 (c) 0 (d) 8

171. **The first raw moment about 4 is -4. What is the value of arithmetic mean?**

(a) 2 (b) -2 (c) 0 (d) 8

172. **The first raw moment about 0 is 2. What is the value of arithmetic mean?**

(a) 2 (b) -2 (c) 0 (d) 8

173. **The arithmetic mean of a variable is 4. What is the first raw moment around 2?**

(a) 2 (b) -2 (c) 0 (d) 8

174. **The arithmetic mean of a variable is 10. What is the first raw moment around 0?**

(a) 10 (b) -2 (c) 0 (d) 8

175. **The arithmetic mean of a variable is 2.6. What is the first raw moment around 6?**

(a) 2.2 (b) -3.4 (c) 0.1 (d) 1.8

176. **Moments can be–**

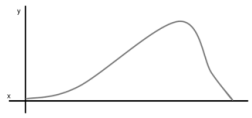
i. positive
ii. not negative
iii. positive or negative

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

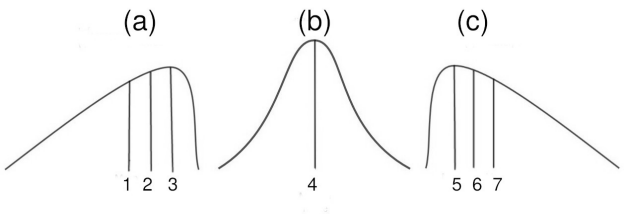
5.2 Skewness

177. **The following graph is an example of –**



(a) Positive Skew (b) Negative Skew (c) No Skew (d) Not detectable

Answer the next ? questions based on the following information



178. **The curve (a) is an example of**

(a) Positive Skew (b) Negative Skew (c) No Skew (d) Not detectable

179. **The curve (b) is an example of**

(a) Positive Skew (b) Negative Skew (c) No Skew (d) Not detectable

180. **In Image (b), what is denoted by 4th value?**

(a) Mean (b) Median (c) Mode (d) All of the above

181. **In Image (c), what is in 6th value?**

(a) Mean (b) Median (c) Mode (d) None of the above

182. **What is the value corresponding to the position 3?**

(a) Mean (b) Median (c) Mode (d) None of the above

183. **What is the value corresponding to the position 7?**

(a) Mean (b) Median (c) Mode (d) None of the above

184. **If $\gamma_1 > 0$, the data is -**

(a) Negatively skewed (b) Positively skewed (c) Symmetric (d) Uncertain

185. **Which relationship is correct?**

(a) $M_o = 2Me - \bar{x}$ (b) $M_o = 3Me - \bar{x}$ (c) $M_o = 3Me - 2\bar{x}$ (d) $M_o = 2Me - 3\bar{x}$

186. **Characteristics of a skewed distributon are** –

i. $Mean \neq Median \neq Mode$
ii. Differences of upper and lower quartiles from median are unequal
iii. Frequency curve is asymmetric

187. **In a distribution, $\mu_2 = 25, \mu_3 = 20$, and $\mu_4 = 2200$; the distribution is** –

(a) Negativelky skewed (b) leptokurtic (c) Platykurtic (d) Symmetric

188. **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

189. **In case of positive skewness, which one is correct?**

(a) $Mean > Median > Mode$ (b) $Mean < Median < Mode$

(c) $Mean = Median = Mode$ (d) $Mean > Median < Mode$

190. **For a symmetrical distribution, β_1 =—**

(a) 1 (b) -1 (c) 0 (d) 3

191. $\sqrt{\beta_1} = -0.23$ **implies**–

(a) Left Skew (b) Symmetry (c) Right Skew (d) Mesokurtic

192. $\gamma_1 = 0.43$ **implies**–

(a) Left Skew (b) Symmetry (c) Right Skew (d) Mesokurtic

193. $\gamma_1 = 0.0001$ **implies**–

(a) Left Skew (b) Symmetry (c) Right Skew (d) Mesokurtic

194. **First 3 moments about 2 are 1, 2 and 8, respectively. What is the arithmetic mena?**

(a) 1 (b) 2 (c) 3 (d) 4

195. **What is the second central moments of first 10 natural numbers?**

(a) 9.90 (b) 9.09 (c) 8.25 (d) 5.67

196. **Frequencies of low and high values are smaller in – distribution**

(a) Positively skewed (b) Negatively skewed (c) Symmetric (d) Mesokurtic

197. **Frequencies of higher values are smaller and of low values are higher in – distribution**

(a) Positively skewed (b) Negatively skewed (c) Symmetric (d) Mesokurtic

198. **Frequencies of higher values are higher and of low values are lower in – distribution**

(a) Positively skewed (b) Negatively skewed (c) Symmetric (d) Mesokurtic

199. **In a postively-skewed distribution–**

i. Frequencies of higher values are lower
ii. Frequencies of low values are higher
iii. Frequencies of higher values are higher

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

200. **In a negatively-skewed distribution–**

i. Frequencies of higher values are lower
ii. Frequencies of low values are lower
iii. Frequencies of higher values are higher

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

201. **In a symmetric distribution–**

i. Frequencies of higher values are lower
ii. Frequencies of low values are higher
iii. Frequencies of low values are lower

Which one is correct?

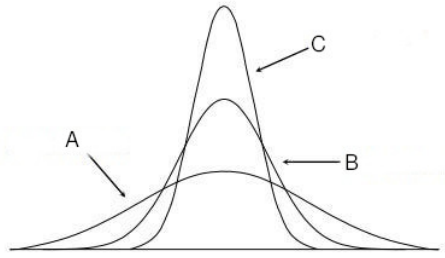
(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

202. **Which formula is correct for determining skewness?**

(a) $\gamma_1 = \sqrt{\frac{\mu_3^2}{\mu_2^3}}$ (b) $\gamma_1 = \sqrt{\beta_1^2}$ (c) $\gamma_1 = \sqrt{\frac{\mu_3}{\mu_2^3}}$ (d) $\frac{\mu_2}{\sqrt{\mu_3^2}}$

5.3 Kurtosis

203. **Which curve is platykurtic?**



(a) A (b) B (c) C (d) None

204. **How many types of kurtosis are there?**

(a) 2 (b) 3 (c) 4 (d) 5

205. **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

206. $\beta_2 = \sqrt{9}$ **implies data are–**

(a) Leptokurtic (b) Platykurtic (c) Mesokurtic (d) Symmetric

207. **For a mesokurtik distribution,** $\beta_2 = --$

(a) 0 (b) -3 (c) 3 (d) 1

208. **What is the relationship between** γ_2 **and** β_2**?**

(a) $\gamma_2 = \beta_2 + 3$ (b) $\gamma_2 = 2\beta_2 - 3$ (c) $\gamma_2 = \beta_2 - 1$ (d) $\gamma_2 = \beta_2 - 3$

5.4 Misc

209. **What is formula of the left inner fence for a box and whisker plot?**

(a) $Q_1 - 1.5 \times IQR$ (b) $Q_3 + 1.5 \times IQR$ (c) $Q_1 - 3 \times IQR$ (d) $Q_3 + 1.5 \times IQR$

210. **What is the formula of IQR?**

(a) $IQR = Q_3 + Q_1$ (b) $IQR = Q_3 - Q_1$ (c) $IQR = 2Q_3 - Q_1$ (d) $IQR = \frac{Q_3 - Q_1}{2}$

211. **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

212. **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

213. **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

214. **Which is not a time series data?**

(a) Number of calls received per week (b) No. of road accidents on different days
(c) No. of earthquakes in different regions (d) No. of particles decayed in each second

215. **Which is not a time series data?**

(a) Daily closing prices of a stock (b) Annual temperature records of a city
(c) Number of students in a each class (d) Number of visitors to a website each day

216. **Which is an example of time series data?**

(a) Number of calls received by a call center each month

(b) Height of children at different ages

(c) Tota salary of all employees at a company

(d) Population of different countries in 2020

217. **Which is a type of trend?**

i. Linear trend
ii. Non-linear trend
iii. Cyclic trend

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

218. **Which can measure trend most precisely?**

(a) Graphical method (b) Semi-average method

(c) Moving average method (d) Quarter-average method

219. **Which is the multiplicative time series model?**

(a) $Y_t = T_t \times S_t \times C_t \times R_t$ (b) $Y_t = T_t \times D_t \times C_t \times R_t$

(c) $Y_t = T_t \times P_t \times C_t \times R_t$ (d) $Y_t = T_t \times G_t \times C_t \times R_t$

Answer the next two questions based on the following information

Commodity wise export shipments (In million US$) of Frozen and live fish in Bangladesh are given below.

Months	2022-23 (July-Dec)	2023-24 (Jan-Jun)	2022-23 (July-Dec)
Amount	246.38	175.19	215.13

Table 1: Source:BB

220. **Which component of time series is most evident?**

(a) Irregular variation (b) Cyclic variation (c) Trend (d) Seasonal variation

221. **Which value is most probable in the next period?**

(a) 200 (b) 190 (c) 130 (d) 220

222. **A linear trend goes along a –**

(a) a curved line (b) a wave (c) straight line (d) circle

223. **A non-linear trend goes along a –**

(a) a curved line (b) a wave (c) a cubic pattern (d) Any of the above

224. **Which measure of trend is subjective?**

(a) Semi-average method (b) Graphical method

(c) Moving average method (d) None of the above

Answer the next THREE questions based on the following information

225. **What is the second value of semi-average method?**

(a) 85.40 (b) 90.37 (c) 91.73 (d) 89.78

Year	2016	2017	2018	2019	2020	2021	2022	2023
USD Exchange Rate	78.35	79.49	82.87	83.26	84.60	84.37	85.80	106.70

Table 2: Source–Investing.com

226. **What kind of a trend do the data have?**

(a) Upward (b) Downward

(c) Both upward & downward (d) No trend

227. **Which component of time series is visible in the later part of the data?**

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

Answer the next THREE questions based on the following information

Year	2016	2017	2018	2019	2020	2021	2022	2023
USD Exchange Rate	78.35	79.49	82.87	83.26	84.60	84.37	85.80	106.70

Table 3: Source–Investing.com

228. **What is the second value of semi-average method?**

(a) 85.40 (b) 90.37 (c) 91.73 (d) 89.78

229. **What kind of a trend do the data have?**

(a) Upward (b) Downward

(c) Both upward & downward (d) No trend

230. **Which component of time series is visible in the later part of the data?**

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

Answer the next THREE questions based on the following information

Month	January	February	March	April	May	June	July	August
Rainfall (mm)	150	120	180	200	160	140	170	190

Table 4: Source: Meteorological Department

231. **What is the semi-average for the second period of the data?**

(a) 160 (b) 165 (c) 180 (d) 190

232. **Which type of trend do these rainfall data indicate?**

(a) Increasing (b) Decreasing (c) No trend (d) Fluctuating

233. **What is the primary variation component observed in the data?**

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

234. **Time Series has how many components?**

(a) 2 (b) 3 (c) 4 (d) 5

235. **Which component involves period more than one (01) year?**

(a) Seasonal Variation (b) Cyclic Variation (c) Irregular Variation (d) Random Variation

236. **Which one is not a component of Time Series**

(a) Seasonal Variation (b) Cyclic Variation (c) General Trend (d) Regular Variation

237. **A company is constantly getting greater revenue than previous year; this is–**

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

238. **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

239. **In Semi-Average method, what is the 2nd average?**

(a) 74 (b) 24.67 (c) 95.33 (d) 28

240. **What is the last value of 3-yearly moving average?**

(a) 93.55 (b) 95.53 (c) 95.33 (d) 59.33

241. **Which component of time series is affected by economic changes due to war?**

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

242. **Which component of time series is affected by economic changes during a recession?**

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

243. **Which component of time series is most likely to be impacted by weather conditions like a monsoon season?**

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

244. **Which component of time series would be influenced by government policy changes such as tax reforms?**

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

Answer the next three questions based on the following table:

Year	2016	2017	2018	2019	2020
Car Sales	1200	1500	1700	1600	1800

245. **What is the first value of the 2-year moving average?**

(a) 1350 (b) 1300 (c) 1400 (d) 1250

246. **What is the last value of the 3-year moving average?**

(a) 1600 (b) 1670 (c) 1630 (d) 1750

247. **What is the semi-average for the first period of the data?**

(a) 1350 (b) 1400 (c) 1450 (d) 1300

248. **Demand for warm clothes is higher in winter season ans less in summer. Which component of time series deals with this change?**

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

249. **Death rates of a country for 7 years are given below:**

Year	2009	2010	2011	2012	2013	2014	2015
Rate	5	7	6	8	7	12	13

In semi-average method, which year will be excluded?

(a) 2012 (b) 2013 (c) 2015 (d) 2009

250. **Which component of time series represents a natural disaster?**

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

251. **How many models of time series are there to combine the components?**

(a) 2 (b) 3 (c) 4 (d) 5

252. **Which one reflects an irregular variation?**

(a) Fluctuation in production due to war (b) Price hike due to famine

(c) Rise of Temperature to drought (d) Any of the above

8 Published Statistics in Bangladesh

253. **Limitations of published statistics in Bangladesh are –**

i. Wrong data collection method
ii. Insufficient data
iii. Lack of proper training

Which one is correct?

(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

254. **How many sources of published statistics are there in Bangladesh?**

(a) 2 (b) 3 (c) 4 (d) 6

255. **Bangladesh Bureau of Statistics collect –**

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

256. **Which statistics are published by an NGO?**

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

257. **The primary source of official statistics in Bangladesh is –**

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

258. **Which statistics are typically published by NGOs like World Wildlife Fund (WWF)?**

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

259. **Which organization typically publishes non-official statistics in the field of health?**

(a) UNICEF (b) World Health Organization (WHO)

(c) World Bank (d) United Nations (UN)

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

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

Answer Key:

1. (d) R.A. Fisher
2. (d) Database creation
3. (d) Red blood cells in a person's body
4. (a) i and ii
5. (b) $\sum_{i=1}^{20} cx_i = nc\sum_{i=1}^{20} x_i$
6. (d) Regression
7. (d) Ordinal
8. (a) $y_i = \frac{x_i}{a}$
9. (c) 150
10. (c) Sample
11. (b) $b\sum_{i=1}^{n} x_i$
12. (c) 4
13. (d) Success rate
14. (c) Ratio scale
15. (d) Ratio
16. (d) Grade in a subject
17. (b) Number of cars in a parking lot
18. (b) Number of students in a class
19. (b) Number of books on a shelf
20. (a) Shoes sizes available in a store
21. (a) Grades on a multiple choice test (A, B, C, D)
22. (a) Outcomes of rolling a die
23. (a) Counts of people in a room
24. (a) Number of languages spoken by a person
25. (d) No. of particles in an atom
26. (a) 206
27. (d) 122
28. (b) 65
29. (c) 42
30. (d) 84
31. (c) 8
32. (b) 62
33. (b) 6
34. (c) 90
35. (d) 435
36. (c) 24
37. (d) 50
38. (a) 108
39. (b) 174
40. (a) i and ii
41. (a) Temperature
42. (c) Gender
43. (c) Educational Level
44. (a) Temperature
45. (c) Ratio scale
46. (d) Grade in a subject
47. (a) $\prod x_i^2$
48. (b) Continuous variable
49. (c) Mean monthly income in a city is 60,000 taka
50. (d) 13
51. (c) 93
52. (c) 99
53. (d) 119
54. (d) -34
55. (a) Room no.
56. (d) No. of member in a family
57. (c) Nominal
58. (b) 155
59. (a) 225
60. (c) 37
61. (b) 33
62. (a) 20
63. (b) 504
64. (c) 82
65. (a) 71
66. (d) 24
67. (c) 66
68. (a) 74
69. (b) 74
70. (c) 476
71. (a) 61
72. (d) 2
73. (a) Data
74. (a) Primary data
75. (c) 36
76. (b) 45
77. (a) 44%
78. (a) 50
79. (b) 45
80. (b) 75%
81. (a) 55
82. (c) 65
83. (c) 60%
84. (c) $\theta_i = \frac{f_i}{N} \times 360$
85. (d) John Tukey
86. (b) Sample
87. (a) $K = 1 + 3.322logN$
88. (b) Bar Diagram
89. (a) Quartiles are well defined
90. (b) When all the values are equal
91. (c) Geometrtic Mean
92. (d) 5
93. (d) Mode
94. (b) Geometric Mean
95. (c) i & ii
96. (c) 7.5
97. (b) 8
98. (d) Mode

99. (d) 110th Percentile

100. (a) $\sum_{i=1}^{n}(X_i - Median)^2$

101. (b) Geometric Mean

102. (a) All values are equal

103. (b) Median

104. (b) Harmonic mean

105. (d) Mode

106. (b) $AM \times HM = GM^2$

107. (c) ii and iii

108. (c) ii and iii

109. (b) 6.67

110. (b) $\bar{x}$

111. (b) i and iii

112. (a) 40

113. (c) 5.5

114. (b) 13

115. (c) 109

116. (d) 10

117. (a) 20

118. (b) 20

119. (a) 88.36

120. (a) 0

121. (a) $\bar{X} = \frac{\sum f_i x_i}{\sum f_i}$

122. (c) 47

123. (b) n

124. (b) $n + 1$

125. (b) $\frac{n+1}{2}$

126. (c) 32.00

127. (a) $\frac{n}{\sum_{i=1}^{n} \frac{f_i}{x_i}}$

128. (a) i and ii

129. (c) 14.39

130. (c) Harmonic Mean

131. (a) Arithmetic Mean

132. (a) i and ii

132. (c) Harmonic Mean

133. (c) Reciprocal of Mean of Reciprocal

134. (b) $1, 2, 4, 8, 16, 32$

135. (c) 5.66

136. (b) Geometric Mean

137. (d) 10.5

138. (b) 5.66

139. (a) Histogram

140. (c) 8

141. (c) Median

142. (c) Ogive

143. (b) 32

144. (b) 25-50

145. (c) 3.5

146. (b) 70

147. (d) 74

148. (d) 70th percentile

149. (b) 70

150. (c) 51.5

151. (c) 74.6

152. (c) Standard deviation

153. (c) 0

154. (a) (2,4)

155. (a) 2.87

156. (d) Coefficient of variation

157. (d) Rectified Moments

158. (a) $\frac{\sum (x_i - \bar{x})^n}{n}$

159. (b) $\mu_1' = \bar{x} - a$

160. (a) $\frac{\sum f_i (x_i - a)^r}{n}$

161. (c) Moments

161. (d) i, ii and iii

162. (c) μ_2

163. (c) $\frac{\sqrt{\mu_2}}{\bar{x}} \times 100$

164. (d) Arithmetic Mean

165. (c) First central moment

166. (b) μ_3

167. (d) $\mu_2' - \mu_1'^2$

168. (b) 0

169. (d) $\bar{x} - a$

170. (b) -2

171. (c) 0

172. (a) 2

173. (a) 2

174. (a) 10

175. (b) -3.4

176. (b) i and iii

177. (a) Positive Skew

178. (b) Negative Skew

179. (a) Positive Skew

180. (d) All of the above

181. (b) Median

182. (c) Mode

183. (a) Mean

184. (b) Positively skewed

185. (c) $M_o = 3Me - 2\bar{x}$

187. (b) leptokurtic

188. (d) 29.45

189. (a) $Mean > Median > Mode$

190. (c) 0

191. (a) Left Skew

192. (c) Right Skew

193. (b) Symmetry

194. (c) 3

195. (c) 8.25

196. (c) Symmetric

197. (a) Positively skewed

198. (b) Negatively skewed

199. (a) i and ii

200. (c) ii and iii

201. (b) i and iii

202. (a) $\gamma_1 = \sqrt{\frac{\mu_3^2}{\mu_2^3}}$

203. (a) A

204. (b) 3

205. (d) 48

206. (c) Mesokurtic

207. (c) 3

208. (d) $\gamma_2 = \beta_2 - 3$

209. (a) $Q_1 - 1.5 \times IQR$

210. (b) $IQR = Q_3 - Q_1$

211. (a) Mode

212. (d) i, ii &iii

213. (a) Arithmetic Mean

214. (c) No. of earthquakes in different regions

215. (c) Number of students in a class

216. (a) Number of calls received by a call center each month

217. (a) i and ii

218. (c) Moving average method

219. (a) $Y_t = T_t \times S_t \times C_t \times I_t$

220. (d) Seasonal variation

221. (b) 190

222. (a) a curved line

223. (d) Any of the above

224. (b) Graphical method

225. (b) 90.37

226. (a) Upward

227. (c) Irregular Variation

228. (b) 90.37

229. (a) Upward

230. (c) Irregular Variation

231. (b) 165

232. (d) Fluctuation

233. (a) Seasonal Variation

234. (c) 4

235. (b) Cyclic Variation

236. (d) Regular Variation

237. (b) General Trend

238. (d) Moving Median

239. (c) 95.33

240. (c) 95.33

241. (c) Irregular Variation

242. (c) Irregular Variation

243. (b) Seasonal Variation

244. (d) Cyclic Variation

245. (a) 1350

246. (c) 1630

247. (a) 1350

248. (b) Seasonal Variation

249. (b) 2013

250. (c) Irregular Variation

251. (a) 2

252. (d) Any of the above

253. (d) i, ii and iii

254. (b) 3

255. (a) Official statistics

256. (c) Semi-official statistics

257. (b) BBS

258. (b) Non-official statistics

259. (a) UNICEF

260. (c) 10