



MATHS

BOOKS - PATHFINDER MATHS (BENGALI ENGLISH)

STATISTICS

Question Bank

1. For a frequency distribution, mean deviation about mean is computed by

A. $M.D. = \frac{\Sigma f}{\Sigma f|d|}$

B. $M.D. = \frac{\Sigma d}{\Sigma f}$

C. $M.D. = \frac{\Sigma fd}{\Sigma f}$

D. $\frac{\Sigma f|d|}{\Sigma f}$

Answer: D



Watch Video Solution

2. For a frequency distribution, standard deviation is computed by applying the formula

$$\text{A. } \sigma = \sqrt{\frac{\Sigma fd^2}{\Sigma f} - \left(\frac{\Sigma fd}{\Sigma f}\right)^2}$$

$$\text{B. } \sigma = \sqrt{\left(\frac{\Sigma fd}{\Sigma f}\right)^2 - \frac{\Sigma fd^2}{\Sigma f}}$$

$$\text{C. } \sigma = \sqrt{\frac{\Sigma fd^2}{\Sigma f} - \frac{\Sigma fd}{\Sigma f}}$$

$$\text{D. } \sigma = \sqrt{\left(\frac{\Sigma fd}{\Sigma f}\right)^2 - \frac{\Sigma fd^2}{\Sigma f}}$$

Answer: A



Watch Video Solution

3. The mean of the series $a, a+d, a+2d, \dots, a+2nd$ is

A. a) $a + (n - 1)d$

B. b) $a + nd$

C. c) $a + (n + 1)d$

D. d) none of these

Answer: C



Watch Video Solution

4. The mean deviation of the series 3, 4, 5, 6, 7 about the median is

A. 25

B. 5

C. 1.2

D. 0

Answer: D

 [Watch Video Solution](#)

5. If v is the variance and σ is the standard deviation, then

A. $v = \frac{1}{\sigma^2}$

B. $v = \frac{1}{\sigma}$

C. $v = \sigma^2$

D. $v^2 = \sigma$

Answer: C

 [Watch Video Solution](#)

6. Find the range of the data 72, 62, 44, 25, 94, 54, 9, 56, 71, 27

A. 82

B. 75

C. 85

D. 81

Answer: C



[Watch Video Solution](#)

7. Find the standard Deviation of 6 and 8.

A. 2

B. 5

C. 1

D. None of these

Answer: C



[Watch Video Solution](#)

8. Find the mean if the coefficient of variation is 5% and variance is 4.

A. 5

B. 10

C. 25

D. None of these

Answer: C



[Watch Video Solution](#)

 [Watch Video Solution](#)

9. If the mean of the numbers $27+x$, $31+x$, $89+x$, $107+x$, $156+x$ is 82, then the mean of $130+x$, $126+x$, $68+x$, $50+x$, $1+x$ is

- A. 75
- B. 157
- C. 82
- D. 80

Answer: A

 [Watch Video Solution](#)

10. In a class of 100 students there are 70 boys whose average marks in subject are 75. If the average marks of the complete

class are 72, then the average marks of the girls

A. 73

B. 65

C. 68

D. 74

Answer: B



[Watch Video Solution](#)

11. The median of a set of 9 distinct observations 20.5. If each of the largest 4 observation of the set is increased by 2, then the median of the new set

A. a) is increased by 2

B. b) is decreased by 2

C. c) is two times the original median

D. d) remains the same as that of the original set

Answer: D



[Watch Video Solution](#)

12. A set of numbers consisting of three 4's, five 5's, six 6's, eight 8's and seven 10's. The mode of this set of numbers is

A. 6

B. 7

C. 8

D. 10

Answer: C



[Watch Video Solution](#)

 [Watch Video Solution](#)

13. Find the mean deviation about the mean of the data : 7, 8, 4, 13, 9, 5, 16, 18

 [Watch Video Solution](#)

14. Find the mean deviation about the median of the data : 34, 23, 46, 37, 40, 28, 32, 50, 35, 44

 [Watch Video Solution](#)

15. Find the mean if the coefficient of variation is 5% and variance is 4.

 [Watch Video Solution](#)

16. If co-efficient of variation = 45 % and mean = 24. Find the standard Deviation

 [Watch Video Solution](#)

17. Two variables x and y are related by $y = 2-3x$ If the S.D of x be 1.5 the find the value of S.D of Y

 [Watch Video Solution](#)

18. The variance of first n natural numbers is 44. Find the value of n.

 [Watch Video Solution](#)

19. Find the range for the following frequency distribution :



[View Text Solution](#)

20. The standard Deviation of 30 observation of a sample is 4.5 If each observation be subtracted 10, the find the new standard deviation of the resulting observations.



[Watch Video Solution](#)

21. If the SD of the first numbers even integers be $\sqrt{40}$, then find numbers.



[Watch Video Solution](#)

22. Find the mean and variance of the data : 5, 9, 8, 12, 6, 10, 6, 8

 [Watch Video Solution](#)

23. Find the SD of first 10 multiples of 3.

 [Watch Video Solution](#)

24. Calculate the mean deviation about median from the data :

340, 150, 210, 240 , 300, 310 320.

 [Watch Video Solution](#)

25. The variance of 20 observations is 5. If each observation be multiplied by 2, then find the variance of the resulting observation.



[Watch Video Solution](#)

26. The mean and standard deviation of observations are 8 and 14 respectively. If each observation be multiplied by 3, the find the new and mean and new standard deviation of the resulting observation.



[Watch Video Solution](#)

27. Calculate the mean and standard deviation of the numbers-natural numbers .



[Watch Video Solution](#)

28. The scores of batsman in 10 matches were as follows : 38, 70, 48, 34, 42, 55, 63, 54, 44. Find the mean of these 10 scores.



[Watch Video Solution](#)

29. Prove that if x_1 and x_2 two values of a variable x , so its standard deviation is $\frac{1}{2}(x_1 - x_2)$, ($x_1 > x_2$)



[Watch Video Solution](#)

30. Find the mean deviation about the mean of the data : 7, 8, 4, 13, 9, 5, 16, 18



[Watch Video Solution](#)

31. Find the mean deviation about the mean of the data : 7, 8, 4, 13, 9, 5, 16, 18



[Watch Video Solution](#)

32. Find the SD of first 10 multiples of 3.

 [Watch Video Solution](#)

33. The mean and variance of seven observations are 8 and 16 respectively. If five of these be 2,4,10,12, 14, find the remaining two observations.

 [Watch Video Solution](#)

34. The mean and variance of seven observations are 8 and 16 respectively. If five of these be 2,4,10,12, 14, find the remaining two observations.

 [Watch Video Solution](#)

35. The mean and standard deviation of 100 observations were calculated as 40 and 5.1 respectively by a student who took by mistake 50 instead of 40 for one observation. What are the correct mean and standard deviation ?

 [Watch Video Solution](#)

36. The mean and S.D. of a sample of size 10 were found to be 9.0 and 2.0 respectively. Later on, an additional observation 25 was included in the original sample. Find the mean and S.D. of the final 11 observations.

 [Watch Video Solution](#)

37. Let $x_1, x_2, x_3, \dots, x_n$ be n values of a variable x . If these values are changed to $x_1 + a, x_2 + a, \dots, x_n + a$, where $a \in \mathbb{R}$, show

that the variance remains unchanged.

 [Watch Video Solution](#)

38. The mean of 5 observations is 4.4 and their variance is 8.24. If three of the observations are 1, 2 and 6, find the other two observations.

 [Watch Video Solution](#)

39. Find the mean deviation about the mean of the data : 7, 8, 4, 13, 9, 5, 16, 18

 [Watch Video Solution](#)

40. Find the mean deviation with respect to median of the frequency distribution table :

Daily wages (Rs.)	95-105	105-115	115-125	125-135	135-145	145-150
No. of worker	9	13	16	26	30	12

 [Watch Video Solution](#)

41. Find the mean deviation with respect to median of the frequency distribution table :

Daily wages (Rs.)	95-105	105-115	115-125	125-135	135-145	145-150
No. of worker	9	13	16	26	30	12

 [Watch Video Solution](#)

42. Calculate the mean and standard deviation of the numbers-natural numbers .

 [Watch Video Solution](#)

43. The mean and variance of 8 observations are 9 and 9.25 respectively. If six of the observation are 6,7,10,12,12 and 13, find the remaining two observations.

 [Watch Video Solution](#)

44. For a group of 200 candidates the mean and S.D. were found to be 40 and 15 respectively. Later on it was found that the score 43 was misread as 34. Find the correct mean and correct S.D.

 [Watch Video Solution](#)

45. The number of observations of two samples are 30 and 40 respectively, each have same mean value 61, but variance are 25 and 16 respectively. Find S.D. of final sample of 70 observations mixed by above two samples.

 [Watch Video Solution](#)

46. If the heights of 3 persons are 144 cm, 153 cm and 155 cm respectively, then mean height is

 [Watch Video Solution](#)

47. Arithmetic mean of the following frequency distribution

x : 4 7 10 13 16 19

f : 7 10 15 20 25 30

A. 13.6

B. 13.8

C. 14.0

D. None of these

Answer: B

 [Watch Video Solution](#)

48. The weighted mean of the first n natural number if their weight are the same as the number is

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

B. $\frac{n+1}{2}$

C. $\left(\frac{2n+1}{3}\right)$

D. None of these

Answer: C

 [Watch Video Solution](#)

49. The mean income of a group of persons is Rs. 400. Another group of persons has mean income Rs. 458. If the mean income of all the persons in the two groups together is Rs. 430, then ratio of the number of persons in the groups.

A. $4/3$

B. $5/4$

C. $5/3$

D. None of these

Answer: C

 [Watch Video Solution](#)

50. The mean of a set of number is increased by λ , then mean of the new set is

A. \bar{x}

B. $\bar{x} + \lambda$

C. $(\bar{x} + 1)$

D. None of these

Answer: B



[Watch Video Solution](#)

51. The geometric mean of number $7, 7^2, 7^3, \dots, 7^n$ is

A. 7^n

B. $7^{\frac{n}{2}}$

C. $7^{\frac{n+1}{2}}$

D. None of these

Answer: C



Watch Video Solution

52. Harmonic mean of 2, 4, 5 is.....

A. 4.21

B. 3.16

C. 2.98

D. None of these

Answer:

 [Watch Video Solution](#)

53. The number of runs scored by 11 players of a cricket team of school are 5,19,42,11,50,30,21,0,52,36,27. The median is

- A. 21
- B. 27
- C. 30
- D. None of these

Answer: B

 [Watch Video Solution](#)

54. find the median of the following frequency distribution

Marks obtained	0-10	10-30	30-60	60-70	70-90
No. of students	15	25	30	4	10

A. 4

B. 5

C. 6

D. None of these

Answer: B



Watch Video Solution

55. Mode of the data 3,2,5,2,3,5,6,6,5,3,5,2,5 is

A. 6

B. 4

C. 5

D. 3

Answer: C

 [Watch Video Solution](#)

56. If the value of mode and mean is 60 and 66 respectively, then the value of median is

A. 60

B. 64

C. 68

D. None of these

Answer: B

 [Watch Video Solution](#)

57. The mean from the following data

340, 150, 210, 240, 300, 320 is



[Watch Video Solution](#)

58. Marks of 5 students of a tutorial group are 8, 12, 13, 15, 22 then variance is

A. 21

B. 21.2

C. 21.4

D. None of these

Answer: B



[Watch Video Solution](#)

59. In a binomial distribution mean is 4 and variance is 3, then find out number of observations.

 [Watch Video Solution](#)

60. Prove that the statement $\neg(p \leftrightarrow q) \leftrightarrow \{(p \wedge \neg q) \vee (\neg p \wedge q)\}$ is a tautology.

 [Watch Video Solution](#)

61. Prove that

$$[(p \wedge \neg q) \vee (q \wedge \neg p)] \wedge (p \vee q) = (p \vee q) \wedge (\neg q \vee \neg p) \wedge (p \vee q)$$

 [Watch Video Solution](#)

62. Show that the argument "Unless we control population all advances resulting from planning will therefore, we must control population" is valid.

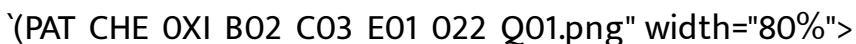
 [Watch Video Solution](#)

63. If x, y, z be any three elements of a Boolean lattice, show that $(x + y) \cdot (y + z) = y + (x \cdot z)$.

 [Watch Video Solution](#)

64. Choose the correct answer:

The hybridisation of the carbon atom (underlined) present in



is

 [Watch Video Solution](#)

65. Find the mean of 2,5,7 and 9

 Watch Video Solution

66. If \bar{x} is the mean of a set of n observations $x_1, x_2, x_3, \dots, x_n$

then $\sum_{i=1}^n (x_i - \bar{x})$ is equal to

A. M . D . About mean

B. S.D

C. 0

D. None of these

Answer: C

 Watch Video Solution

67. If the mean of 3, 4, x, 7, 10 is 6 then the value of x is

A. 4

B. 5

C. 6

D. 7

Answer: C



[Watch Video Solution](#)

68. Weight of 5 students is given as 54,44,47,65 and 51. Find the mean of the following weight

A. 51.3

B. 52.2

C. 55.2

D. 54.2

Answer: B



[Watch Video Solution](#)

69. The Mean of a set of numbers is \bar{x} . If each number is increased by λ , then the mean of the new set is

A. \bar{x}

B. $\bar{x} + \lambda$

C. $\lambda\bar{x}$

D. none of these

Answer: B



Watch Video Solution

70. The mean of a set of numbers is \bar{x} . If such numbers is multiplied by λ , then the mean of the new set is

A. \bar{x}

B. $\lambda + \bar{x}$

C. $\lambda\bar{x}$

D. none of these

Answer: C



Watch Video Solution

71. The mean of the squares of first natural numbers is

A. $\frac{1}{2}n^2$

B. $\frac{1}{8}n(n + 1)$

C. $\frac{1}{6}n(2n + 1)$

D. $\frac{1}{6}(n + 1)(2n + 1)$

Answer: D



[Watch Video Solution](#)

72. For a continuous series the mean is computed by the following formula

A. $Mean = A + \frac{\sum f}{n}$

B. $Mean = A + \frac{\sum d}{f}$

$$C. \text{ Mean} = A + \frac{\sum f}{d}$$

$$D. \text{ Mean} = A + \frac{\sum fd}{f}$$

Answer: D

 [Watch Video Solution](#)

73. If the mean of first n natural numbers is equal to $\frac{n+7}{3}$, then n is equal to

A. 10

B. 11

C. 12

D. none of these

Answer: C

 [Watch Video Solution](#)

74. The mean of discrete observation y_1, y_2, \dots, y_n is given by

A. $\sum_{i=1}^n \frac{y_i}{n}$

B. $\frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n i}$

C. $\frac{\sum_{i=1}^n y_i f_1}{n}$

D. $\frac{\sum_{i=1}^n y_i f_1}{\sum_{i=1}^n f_1}$

Answer: A



Watch Video Solution

75. The mean of 130, 126, 68, 50, 1 is

A. 75

B. 157

C. 82

D. 80

Answer: A



Watch Video Solution

76. If d_i is the deviation of a class mark y_i from 'a' the ' assumed mean ' and F_1 is the frequency, then $m_g = x + \frac{1}{\sum f_1} \left(\sum f_i d_i \right)$

then x is

A. lower limit

B. assumed mean

C. number of observations

D. class size

Answer: B



Watch Video Solution

77. The mean of first three terms is 14 and mean of next two terms is 18. The mean of all the five terms is

A. 14.5

B. 15

C. 15.2

D. 15.6

Answer: D



Watch Video Solution

78. Geometric mean of the numbers $2, 2^2, 2^3, \dots, 2^n$ numbers is

A. $2^{\frac{2}{n}}$

B. $2^{\frac{n}{2}}$

C. $2^{\frac{n-1}{2}}$

D. $2^{\frac{n+1}{2}}$

Answer: D



Watch Video Solution

79. The geometric mean of numbers observations

$x_1, x_2, x_3, \dots, x_n$ is

A. $\frac{\sum_{i=1}^n (x_i)}{n}$

B. $\frac{n}{\sum_{i=1}^n \left(\frac{1}{x_i}\right)}$

C. $(x_1 x_2 x_3 \dots x_n)^{\frac{1}{n}}$

D. none of these

Answer: C

 [Watch Video Solution](#)

80. The geometric mean of numbers observations 4, 8, 16, is

A. $\frac{28}{3}$

B. 8

C. $\frac{48}{7}$

D. none of these

Answer: B

 [Watch Video Solution](#)

81. The harmonic mean of 4, 8, 16, is

A. 6.4

B. 6.7

C. 6.85

D. 7.8

Answer: C



[Watch Video Solution](#)

82. The harmonic mean of 3, 7, 8, 10, 14, is

A. $\frac{3 + 7 + 8 + 10 + 14}{5}$

B. $\frac{1}{3} + \frac{1}{7} + \frac{1}{8} + \frac{1}{10} + \frac{1}{14}$

C.
$$\frac{\frac{1}{3} + \frac{1}{7} + \frac{1}{8} + \frac{1}{10} + \frac{1}{14}}{5}$$

D.
$$\frac{5}{\frac{1}{3} + \frac{1}{7} + \frac{1}{8} + \frac{1}{10} + \frac{1}{14}}$$

Answer: D



Watch Video Solution

83. Product of n positive number is unity. The sum of these numbers can not be less than

A. 1

B. n

C. n^2

D. none of these

Answer: B



 Watch Video Solution

84. In an arranged series of n observations (n being an odd number), the median is value of

A. $\left(\frac{n}{2}\right)$ th item

B. $\left(\frac{n+1}{2}\right)$ th item

C. $\left(\frac{n}{2} + 1\right)$ th item

D. $\left(n + \frac{1}{2}\right)$ th item

Answer: B

 Watch Video Solution

85. The median of 10, 14, 11, 9, 8, 12, 6, is

A. 10

B. 12

C. 14

D. 11

Answer: A



Watch Video Solution

86. If a variable takes the discrete values $\alpha + 4, \alpha - \frac{7}{2}, \alpha - \frac{5}{2}, \alpha - 3, \alpha - 2, \alpha + \frac{1}{2}, \alpha - \frac{1}{2}, \alpha + 5$ ($\alpha > 0$)

then the median is

A. $\alpha - \frac{5}{4}$

B. $\alpha - \frac{1}{2}$

C. $\alpha - 2$

D. $\alpha + \frac{5}{4}$

Answer: A

 [Watch Video Solution](#)

87. In an arranged discrete series in which total number of observations 'n' is even then the median is

A. $\frac{n}{2}$ th item

B. $\left(\frac{n}{2} + 1\right)$ th item

C. the mean of $\frac{n}{2}$ th and $\left(\frac{n}{2} + 1\right)$ th item

D. none of these

Answer: C

 [Watch Video Solution](#)

88. The mode of following items 0, 1, 6, 7, 2, 3, 7, 6, 6, 2, 6, 0, 5, 6, 0 is

A. 0

B. 5

C. 6

D. 2

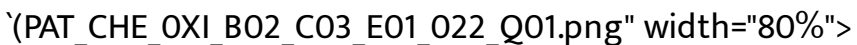
Answer: C



Watch Video Solution

89. Choose the correct answer:

The hybridisation of the carbon atom (underlined) present in

 (PAT_CHE_OXI_B02_C03_E01_022_Q01.png" width="80%")

is

A. 6

B. 10

C. 8

D. none of these

Answer: A



[Watch Video Solution](#)

90. For a normal distribution, we have

A. mean = median

B. median = mode

C. mode = mean

D. mean = median = mode

Answer: D



Watch Video Solution

91. The relationship between mean median and mode for a moderately skewed distribution is

- A. mode = median - 2 mean
- B. mode = 2 median - mean
- C. mode = 2 median - 3 mean
- D. mode = 3 median - 2 mean

Answer: D



Watch Video Solution

92. If the mode of a data is 18 and the mean is 24 then median is

A. 18

B. 24

C. 22

D. 21

Answer: C



[Watch Video Solution](#)

93. Which of the following is not a measure of dispersion ?

A. variance

B. mean deviation

C. standard deviation

D. mode

Answer: D



Watch Video Solution

94. For a frequency distribution, mean deviation about mean is computed by

$$\text{A. } M. D = \frac{\sum (d_i)}{\sum (f_i)}$$

$$\text{B. } M. D = \frac{\sum (f_i d_1)}{\sum (f_i)}$$

$$\text{C. } M. D = \frac{\sum (f_i |d_1|)}{\sum (f_i)}$$

$$\text{D. } M. D = \frac{\sum f_i}{\sum (f_i |d_1|)}$$

Answer: C



Watch Video Solution

95. The mean for the observation 1, 2, 3, 4 is

A. 4

B. 2.5

C. 3.6

D. none of these

Answer: B



[Watch Video Solution](#)

96. The variance of 2, 4, 6, 8, 10, is

A. 8

B. $\sqrt{8}$

C. 6

D. none of these

Answer: A



Watch Video Solution

97. The S.D of 7 scores 1, 2, 3, 4, 5, 6, 7, is

A. 4

B. 2

C. $\sqrt{7}$

D. none of these

Answer: B



Watch Video Solution

98. If the standard deviation of 1, 2, 3, 4, ..., 10 is σ , then the standard deviation of 11, 12, 13, 14, ..., 20 is

A. $\sigma + 10$

B. 10σ

C. σ

D. None of these

Answer: C



[Watch Video Solution](#)

99. S.D. of numbers observation $a_1, a_2, a_3, \dots, a_n$ is σ then the S.D. of the observations $\lambda a_1, \lambda a_2, \lambda a_3, \dots, \lambda a_n$ is

A. $\lambda\sigma$

B. $-\lambda\sigma$

C. $|\lambda|\sigma$

D. σ

Answer: C



Watch Video Solution

100. If each observation of a raw data whose variance is σ^2 is increased by λ then the variance of the new set is

A. σ^2

B. $\lambda^2\sigma^2$

C. $\lambda + \sigma^2$

D. $\lambda^2 + \sigma^2$

Answer: A



Watch Video Solution

101. Let σ be the standard deviation of n observations. Each of the n observation is multiplied by a constant c . Then the standard deviation of the resulting numbers is

A. σ

B. $c\sigma$

C. $\sigma\sqrt{c}$

D. None of these

Answer: B



102. For a frequency distribution, standard deviation is computed by

A. $\sigma = \frac{\sum f_i(x_i - \bar{x})}{\sum f_i}$

B. $\sigma = \frac{\sqrt{\sum f_i(x_i - \bar{x})^2}}{\sum f_i}$

C. $\sigma = \sqrt{\frac{\sum f_i(x_i - \bar{x})^2}{\sum f_i}}$

D. $\sigma = \sqrt{\frac{\sum f_i(x_i - \bar{x})}{\sum f_i}}$

Answer: C



Watch Video Solution

103. Mean of first n natural numbers is

A. $\frac{n(n-1)}{2}$

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

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

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

Answer: D



Watch Video Solution

104. $(x_1 - \bar{x}) + (x_2 - \bar{x}) + \dots + (x_n - \bar{x}) =$

A. 0

B. 1

C. \bar{x}

D. None of these

Answer: A



Watch Video Solution

105. If the mean of the table is 8, then find the value of P.

x_i	3	5	8	9	11	13
f_i	6	8	5	P	8	4

A. 70.25 kg

B. 70.50kg

C. 70.75kg

D. None of these

Answer: A



[Watch Video Solution](#)

106. A factory employs 100 workers of whom 60 in the first shift and 40 work in the second shift. The average wage of all the 100

workers is Rs. 38. If the average wage of 60 workers of the first shift is Rs. 40, then the average wage of the remaining 40 workers of the second shift is

A. 35

B. 40

C. 45

D. None of these

Answer: A



[Watch Video Solution](#)

107. Geometric mean of 3, 9 and 27 is

A. 18

B. 6

C. 9

D. None of these

Answer: C



Watch Video Solution

108. The median of the items 6, 10, 4, 3, 11, 22, 18, is

A. 9

B. 10

C. 9.5

D. 11

Answer: C



Watch Video Solution

109. If median = (mode + 2 mean) Mean, then Mean is equal to

A. 3

B. $\frac{1}{3}$

C. 2

D. None of these

Answer: B



[View Text Solution](#)

110. The scores of a batsman in ten innings are : 38, 70, 48, 34, 42,

55, 63, 46, 54, 44, then the mean is

A. 48.4

B. 49.2

C. 48.6

D. 49.4

Answer: D



[Watch Video Solution](#)

111. The Standard Deviation of scores 1, 2, 3, 4, 5 is

A. $\frac{2}{5}$

B. $\frac{3}{5}$

C. $\sqrt{2}$

D. $\sqrt{3}$

Answer: C

 [Watch Video Solution](#)

112. If the mean of the first n odd natural numbers be numbers itself, then n is

A. 1

B. 2

C. 3

D. any natural number

Answer: D

 [Watch Video Solution](#)

113. The A.M of the series 1, 2, 4, 8, 16..., 2^n is

A. $\frac{2^n - 1}{n}$

B. $\frac{2^{n+1} - 1}{n + 1}$

C. $\frac{2^n + 1}{n}$

D. $\frac{2^n - 1}{n + 1}$

Answer: A



Watch Video Solution

114. If the mean of the numbers $x_1, x_2, x_3, \dots, x_n$ is \bar{x} , then the mean of the numbers $x_i + 2$, is , where $1 \leq i \leq n$

A. $\bar{x} + 2n$

B. $\bar{x} + n + 1$

C. $\bar{x} + 2$

D. $\bar{x} + n$

Answer: B



Watch Video Solution

115. Mean of the first n terms of the A.P
 $a, (a + d), (a + 2d), \dots$ is

A. $a + \frac{nd}{2}$

B. $a + \frac{(n - 1)d}{2}$

C. $a + ((n - 1)d)$

D. $a + nd$

Answer: B



Watch Video Solution

116. If μ is the mean of a distribution , then $\sum f_i(y_i - \mu)$ is equal to

A. M.D

B. S.D

C. 0

D. none of these

Answer: C



[Watch Video Solution](#)

117. If the mean of n observations $1^2, 2^2, 3^2, \dots, n^2$ is $\frac{46n}{11}$ then n equal to

A. 11

B. 12

C. 23

D. 22

Answer: A



Watch Video Solution

118. The mean of 50 observations is 36. If two observations 30 and 42 are deleted, then mean of the remaining observations is

A. 48

B. 36

C. 38

D. none of these

Answer: B



Watch Video Solution

119. the weighted mean of first n natural numbers whose weights are equal to the squares of corresponding numbers , is

A. $\frac{n + 1}{2}$

B. $\frac{3n(n + 1)}{2(2n + 1)}$

C. $\frac{(n + 1)(2n + 1)}{6}$

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

Answer: B



Watch Video Solution

120. A group of 10 items has mean 6. If the mean of 4 of these items is 7.5 then the mean of the remaining items is

A. 6.5

B. 5.5

C. 4.5

D. 5

Answer: D



[Watch Video Solution](#)

121. The mean of a set of observations is \bar{x} . If observations are divided by α , $\alpha \neq 0$, and then increased by 10, then the mean of the new set is

A. $\frac{\bar{x}}{\alpha}$

B. $\frac{\bar{x} + 10}{\alpha}$

C. $\frac{\bar{x} + 10\alpha}{\alpha}$

D. $a\bar{x} + 10$

Answer: C



Watch Video Solution

122. The geometric mean of the first n terms of the G.P. a, ar, ar^2, \dots is

A. $ar^{\frac{n}{2}}$

B. ar^n

C. $ar(n-1)(/2)$

D. ar^{n-1}

Answer: C



Watch Video Solution

123. The geometric mean of the observations 2, 4, 8, 16, 32, 64, is

A. $2^{\frac{5}{2}}$

B. $2^{\frac{7}{2}}$

C. 33

D. none of these

Answer: B



Watch Video Solution

124. A boy goes to school from his home at a speed of x km/hr. and comes back at a speed of y km/hr. then the average speed of the boy is given by

A. $\frac{x + y}{2}$ km/hr

B. \sqrt{x} km/hr

C. $\frac{2xy}{x + y}$ km/hr

D. Any of these

Answer: C



[Watch Video Solution](#)

125. Ram spends equal amounts on purchasing three kinds of pens being sold at Rs 5 Rs 10 Rs 15 per piece Average cost of each pen is

A. Rs. 10

B. Rs. $(90)/(11)$

C. 9

D. none of these

Answer: B

 [Watch Video Solution](#)

126. An automobile driver travels from plain to a hill station 120 km distant at an average speed of 30 km per hour. He then makes the return trip at an average speed of 25 km per hour. He covers another 120 km distance on plain at average speed of 50 km. per hour . His average speed over the entire distance of 360 km will be

A. $\frac{30 + 25 + 50}{3}$

B. $(30 \times 25 \times 50)^{\frac{1}{3}}$

C. $\frac{3}{\frac{1}{30} + \frac{1}{25} + \frac{1}{50}}$ km/hr

D. none of these

Answer: C



Watch Video Solution

127. If a, b, c , are any three positive numbers , then the least value of $(a + b + c) \left(\frac{1}{a} + \frac{1}{a} + \frac{1}{a} \right)$ is

A. 3

B. 6

C. 9

D. none of these

Answer: C



Watch Video Solution

128. The median of the data 13, 14, 16, 18, 20, 22 is

A. 17

B. 16

C. 18

D. none of these

Answer: A



Watch Video Solution

129. For a continuous series the mode is computed by the formula

A. $l + \frac{f_{m-1}}{f_m - f_{m-1} - f_{m+1}} \times c$

B. $l + \frac{f_m - f_{m-1}}{f_m - f_{m-1} - f_{m+1}} \times c$

C. $l + \frac{f_m - f_{m-1}}{2f_m - f_{m-1} - f_{m+1}} \times c$

D. $l + \frac{2f_m - f_{m-1}}{f_m - f_{m-1} - f_{m+2}} \times c$

Answer: C



Watch Video Solution

130. If mean = (3median - mode)x, then the value of x is

A. 1

B. 2

C. $\frac{1}{2}$

D. $\frac{3}{2}$

Answer: C



Watch Video Solution

131. The mean deviation from median is

- A. greater than that measured from any other value
- B. less than that measured from any other value
- C. equal to that measured from any other value
- D. maximum if all observations are positive

Answer: A



Watch Video Solution

132. The mean deviation from the median is

- A. greater than that measured from any other value
- B. less than that measured from any other value
- C. equal to that measured from any other value
- D. maximum if all observations are positive

Answer: B

 [Watch Video Solution](#)

133. If each observation of a new data, whose variance is σ^2 is multiplied by λ then the variance of the new set is

- A. σ^2

B. $\lambda^2 \sigma^2$

C. $\lambda + \sigma^2$

D. $\lambda + \sigma^2$

Answer: B



Watch Video Solution

134. The standard deviation of a variate x is σ . The standard deviation of the variable $\frac{aX + b}{c}$: a, b, c , are constants, is

A. $\frac{a}{2} \sigma$

B. $\left| \frac{a}{c} \right| \sigma$

C. $\left(\frac{a^2}{c^2} \right) \sigma$

D. none of these

Answer: B

 [Watch Video Solution](#)

135. If mean of 4,7,x,8 is 5 , then the value of x is.

A. 5

B. 7

C. 3

D. 1

Answer: D

 [Watch Video Solution](#)

136. The S.D of the first n natural numbers is

A. $\frac{n + 1}{2}$

B. $\sqrt{\frac{n(n + 1)}{2}}$

C. $\sqrt{\frac{(n^2 - 1)}{12}}$

D. none of these

Answer: C



Watch Video Solution

137. The mean and variance of a random variable X having a binomial distribution are 4 and 2 respectively. Then $p(x=1)$ is

A. $\frac{1}{4}$

B. $\frac{1}{32}$

C. $\frac{1}{16}$

D. $\frac{1}{8}$

Answer: B



[Watch Video Solution](#)

138. Which of the following is not a fallacy?

A. $p \wedge \sim p$

B. $p \wedge f$

C. $p \vee f$

D. none of these

Answer: C



[Watch Video Solution](#)

139. Which of the following is a tautology? (p being any statement)

A. $p \wedge f$

B. $p \vee f$

C. $p \vee \sim p$

D. $p \wedge t$

Answer: C



[Watch Video Solution](#)

140. Which of the following is true?

A. $(p \wedge q) = (\sim p) \vee (\sim q)$

B. $(p \vee q) = (\sim p) \wedge (\sim q)$

C. $p \rightarrow q = \sim p \vee q$

D. $\sim(p \vee q) = \sim p \vee q$

Answer: D

 [Watch Video Solution](#)

141. Which of the following is different from the others?

A. $p \rightarrow q$

B. $(\sim q) \rightarrow (\sim p)$

C. $\sim p \rightarrow q$

D. none of these

Answer: C

 [Watch Video Solution](#)

142. Which of the following is different from the others?

A. $\sim(p \leftrightarrow q)$

B. $\sim p \leftrightarrow q$

C. $p \leftrightarrow \sim q$

D. none of these

Answer: D



Watch Video Solution

143. In each of the statements $p \rightarrow \sim q \sim r \rightarrow q$ and p is true, then

A. r is false

B. r is true

C. q is true

D. none of these

Answer: B



[Watch Video Solution](#)

144. Additive identity of the Boolean algebra of logical statement is

A. \wedge

B. \vee

C. \sim

D. none of these

Answer: B



[Watch Video Solution](#)

145. Multiplicative identity of the Boolean algebra of logical statements is

A. \wedge

B. \vee

C. \sim

D. none of these

Answer: A

 Watch Video Solution

146. Let X be a non-empty set, then $P(X) = \{A : A \subset X\}$ is a Boolean lattice w.r.t. the operations

$A + B = A \cup B$, $A \cdot B = A \cap B$ and $A' = X - A$ for all A, B

in $P(X)$ The additive identity of this Boolean algebra is

A. X

B. ϕ

C. $\{\phi\}$

D. none of these

Answer: B



Watch Video Solution

147. Which of the following is true?

A. $p \wedge \sim p = t$

B. $p \vee \sim p = f$

C. $p \rightarrow q = q \rightarrow p$

D. $p \rightarrow q = (\sim q) \rightarrow (\sim p)$

Answer: D



[Watch Video Solution](#)

148. Consider the 2-place Boolean function $f: \{0, 1\} \rightarrow \{0, 1\}$ defined by $f(x_1, x_2) = x_1 + x_2 \cdot x_2$. Then following $f(0, 1)$ is equal to

A. 0

B. 1

C. not defined

D. none of these

Answer: B



[Watch Video Solution](#)

149. If x, y are any two elements of a Boolean lattice, then $(x'+y)'$ is equal to

A. $x \cdot y$

B. $x+y$

C. $x' \cdot y'$

D. none of these

Answer: A



[Watch Video Solution](#)

150. The mean of the data set comprising of 16 observations is 16 .

If one of the observation valued 16 is deleted and three new

observations valued 3, 4 and 5 are added to the data then mean of the resultant data is :

A. 16

B. 15.8

C. 14

D. 16.8

Answer: A



[Watch Video Solution](#)

151. The variance of first 20 natural numbers is

A. $\frac{133}{4}$

B. $\frac{279}{12}$

C. $\frac{133}{2}$

D. $\frac{399}{4}$

Answer: A



Watch Video Solution

152. The negation of $\sim s \vee (\sim r \wedge s)$ is equivalent to

A. $\sim s \wedge (r \wedge \sim s)$

B. $\sim s \vee (r \vee \sim s)$

C. $s \wedge r$

D. $s \wedge \sim r$

Answer: C



Watch Video Solution

153. the variance of first 50 even natural numbers is ,

A. 437

B. $\frac{437}{4}$

C. $\frac{833}{4}$

D. 833

Answer: D



Watch Video Solution

154. The statement $\sim(p \leftrightarrow \sim q)$ is

A. a tautology

B. a fallacy

C. equivalent to $p \leftrightarrow q$

D. equivalent to \sim pharrq

Answer: C



[Watch Video Solution](#)

155. All the students of a class performed poorly in mathematics. The teacher decided to give grace marks of 10 to every student. Which of the following statistical measures will not change even after the grace marks were given ?

A. median

B. mode

C. mean

D. variance

Answer: D



Watch Video Solution

156. Statement I : $(p \wedge \sim q) \wedge (\sim p \wedge q)$ is a fallacy.

Statement II : $(p \rightarrow q) \leftrightarrow (\sim q \rightarrow \sim p)$ is a tautology.

A. Statement 1 is true, Statement-2 is true.

Statement-2 is not a correct explanation for Statement-1

B. Statement-1 is true, Statement-2 is false

C. Statement-1 is false, Statement-2 is true

D. Statement-1 is true, Statement-2 is true, Statement-2 is a correct explanation for Statement-1

Answer: C



Watch Video Solution

157. Let x_1, x_2, \dots, x_n be observations, and \bar{x} be their arithmetic mean and σ^2 be their variance. Statement 1: Variance of $2x_1, 2x_2, \dots, 2x_n$ is $4\sigma^2$. Statement 2: Arithmetic mean of $2x_1, 2x_2, \dots, 2x_n$ is $2\bar{x}$.

- A. Statement-1 is false, Statement-2 is true
- B. Statement-1 is true, Statement-2 is true, Statement 2 is a correct explanation for statement-1
- C. Statement-1 is true, Statement-2 is true, Statement 2 is not a correct explanation for statement-1
- D. Statement-1 is true, Statement-2 is false

Answer: D

 [Watch Video Solution](#)

158. The negation of the statement "If I become teacher, then I will open a school" is

- A. I will become a teacher and I will not open a school
- B. Either I will not become a teacher or I will not open a school
- C. Neither I will become a teacher nor I will not open a school
- D. I will not become a teacher or I will open a school

Answer: A

 [Watch Video Solution](#)

159. If the mean deviation about the median of the numbers $a, 2a, \dots, 50a$ is 50 then $|a|$ equal

- A. 3

B. 4

C. 5

D. 2

Answer: B



[Watch Video Solution](#)

160. Consider the following statements

P : suman is brilliant,

Q: suman is rich

R: Suman is honest

The negation of the statement "Suman is brilliant and dishonest if and only if Suman is rich" can be expressed as

A. $\sim(\sim Q \leftrightarrow (P \wedge \sim R))$

B. $\sim Q \leftrightarrow \sim P \wedge R$

C. $(P \wedge \sim R) \leftrightarrow Q$

D. $P \wedge (Q \leftrightarrow \sim R)$

Answer: C



Watch Video Solution