MATHS

BOOKS - PATHFINDER MATHS (BENGALI ENGLISH)

STATISTICS AND MATHEMATICAL REASONING

Question Bank

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

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2. 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

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

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

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

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

D. None of these

Answer: C

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4. 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

5. 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

6. The geometric mean of number $7, 7^2, 7^3, \ldots, 7^n$ is

A. 7^n

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

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

D. None of these

Answer: C

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

A. 4.21

B. 3.16

C. 2.98

D. None of these

Answer:

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8. 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

9. 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

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10. 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

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11. 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

12. The mean from the following data

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

13. Marks of 5 students of a tutorial group are8, 12, 13, 15, 22 then

variance is

A. 21

B. 21.2

C. 21.4

D. None of these

Answer: B

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

15. Prove that the statement $-\sim(p \leftrightarrow q) \leftrightarrow \{(p \wedge \sim q) \vee (\sim p \wedge q)\}$ is a tautology.

16. Prove that

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

17. Show that the argument "Unless we control population all advances resulting from planning will therefore, we must control population" is valid.
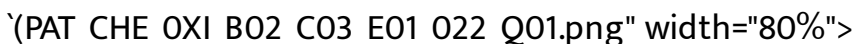
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18. If x, y, z be any three elements of a Boolean lattice, show that

$$(x + y) \cdot (y + z) = y + (x \cdot z).$$

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19. Choose the correct answer:

The hybridisation of the carbon atom (underlined) present in

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is

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

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

22. 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

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23. 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

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24. 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

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25. 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

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

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

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

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

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

Answer: D

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

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

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

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

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

Answer: D

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

then n is equal to

A. 10

B. 11

C. 12

D. none of these

Answer: C

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29. The mean of discrete observation $y_1, y_2, \ldots y_n$ is given by

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

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

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

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

Answer: A

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

A. 75

B. 157

C. 82

D. 80

Answer: A

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

then x is

A. lower limit

B. assumed mean

C. number of observations

D. class size

Answer: B

32. 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

33. Geometric mean of the numbers $2, 2^2, 2^3, \ldots, 2^n$ 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

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34. The geometric mean of numbers observations $x_1, x_2, x_3, \ldots, x_n$ is

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

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

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

D. none of these

Answer: C

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

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

B. 8

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

D. none of these

Answer: B

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

A. 6.4

B. 6.7

C. 6.85

D. 7.8

Answer: C

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

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

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

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

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

Answer: D

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38. 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

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

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

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

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

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

Answer: B

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

A. 10

B. 12

C. 14

D. 11

Answer: A

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41. If a variable takes the discrete values $\alpha + 4, \alpha - \dfrac{7}{2}, \alpha - \dfrac{5}{2}, \alpha - 3, \alpha - 2, \alpha + \dfrac{1}{2}, \alpha - \dfrac{1}{2}, \alpha + 5 (\alpha > 0)$ then the median is

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

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

C. $\alpha - 2$

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

Answer: A

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

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

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

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

D. none of these

Answer: C

43. 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

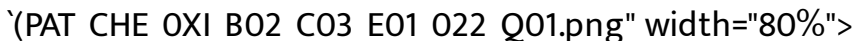**Answer: C**

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44. Choose the correct answer:

The hybridisation of the carbon atom (underlined) present in

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is

A. 6

B. 10

C. 8

D. none of these

Answer: A

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45. For a normal distribution, we have

A. mean = median

B. median = mode

C. mode = mean

D. mean = median = mode

Answer: D

46. 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

47. 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

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

A. variance

B. mean deviation

C. standard deviation

D. mode

Answer: D

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

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

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

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

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

Answer: C

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

A. 4

B. 2.5

C. 3.6

D. none of these

Answer: B

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

A. 8

B. $\sqrt{8}$

C. 6

D. none of these

Answer: A

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52. 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

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53. 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

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

A. $\lambda\sigma$

B. $-\lambda\sigma$

C. $|\lambda|\sigma$

D. σ

Answer: C

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55. 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

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56. 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

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

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

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

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

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

Answer: C

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58. Mean of first n natural numbers is

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

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

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

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

Answer: D

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59. $(x_1 - \bar{x}) + (x_2 - \bar{x}) + \ldots + (x_n - \bar{x}) =$

A. 0

B. 1

C. $\bar{x}$

D. None of these

Answer: A

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60. 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

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61. 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

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62. Geometric mean of 3, 9 and 27 is

A. 18

B. 6

C. 9

D. None of these

Answer: C

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

A. 9

B. 10

C. 9.5

D. 11

Answer: C

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

A. 3

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

C. 2

D. None of these

Answer: B

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65. 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

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

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

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

C. $\sqrt{2}$

D. $\sqrt{3}$

Answer: C

67. 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

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

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

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

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

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

Answer: A

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69. If the mean of the numbers $x_1, x_2, x_3, \ldots x_n$ 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

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70. Mean of the first n terms of the A.P

$a, (a + d), (a + 2d), \dots.$ is

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

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

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

D. $a + nd$

Answer: B

71. 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

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72. If the mean of n observations $1^2, 2^2, 3^2, \ldots, n^2$ is $\dfrac{46n}{11}$ then n equal to

    A. 11

B. 12

C. 23

D. 22

Answer: A

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73. 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

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

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

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

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

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

Answer: B

75. 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

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

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

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

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

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

Answer: C

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77. The geometric mean of the first n terms of the G.P. a, ar, ar^2

,....is

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

B. ar^n

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

D. ar^{n-1}

Answer: C

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78. 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

79. A boy goes to school from him 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. $\dfrac{x+y}{2}$ km/hr

B. $\sqrt{x}$ km/hr

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

D. Any of these

Answer: C

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80. 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

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81. 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. $\dfrac{30 + 25 + 50}{3}$

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

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

D. none of these

Answer: C

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82. If a, b, c, are any three positive numbers , then the least value

of $(a + b + c) \left(\dfrac{1}{a} + \dfrac{1}{a} + \dfrac{1}{a} \right)$ is

A. 3

B. 6

C. 9

D. none of these

Answer: C

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

A. 17

B. 16

C. 18

D. none of these

Answer: A

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

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

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

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

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

Answer: C

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

A. 1

B. 2

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

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

Answer: C

86. The mean deviation from median is

    A. greater then 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

87. The mean deviation from the median is

A. greater then 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

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88. If each observation of a rew 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

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

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

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

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

D. none of these

Answer: B

90. 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

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

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

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

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

D. none of these

Answer: C

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

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

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

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

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

Answer: B

93. 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

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

A. $p \wedge f$

B. $p \vee f$

C. $p \lor \sim p$

D. $p \land t$

Answer: C

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95. Which of the following is true?

A. $(p \land q) = (\sim p) \lor (\sim q)$

B. $(p \lor q) = (\sim p) \land (\sim q)$

C. $p \to q = \sim p \lor q$

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

Answer: D

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96. 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

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97. 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

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98. 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

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

A. $\wedge$

B. $\vee$

C. $\sim$

D. none of these

Answer: B

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

A. $\wedge$

B. ∨

C. ~

D. none of these

Answer: A

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101. Let X be a non-empty set, then $P(X) = \{A : A \subset X\}$ is a

Boolean   lattice   w.r.t.   the   operations

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

inP(X) The additive identity of this Boolean algebra is

A. X

B. ϕ

C. `{phi}

D. none of these

Answer: B

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102. Which of the following is true?

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

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

C. $p \to q = q \to p$

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

Answer: D

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

A. 0

B. 1

C. not defined

D. none of these

Answer: B

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

A. x.y

B. x+y

C. x'.y'

D. none of these

Answer: A

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105. 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

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106. The variance of first 20 natural numbers is

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

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

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

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

Answer: A

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107. 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. $s \wedge -r$

Answer: C

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

A. 437

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

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

D. 833

Answer: D

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

A. a tautology

B. a fallacy

C. equivalent to $p \leftrightarrow q$

D. equivalent to ~pharrq

Answer: C

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110. All the students of a class perfomed poorly in mathematic. The techer decided to give grace marks of 10 to every student Which of the following statistical measure will not change even after the grace marks were given ?

A. median

B. mode

C. mean

D. variance

Answer: D

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111. 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 ia not a correct explation 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

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112. Let $x_1, x_2, \ldots, x_n$ be $n observations,$ and $\leq t barx$

$be their arithimetic mean$ and sigma^2

$be their variance. Statement 1 : Variance of 2x\_1,$ 2x_2,.....,2x_nis4

alpha^2 Statement2 : Arithmeticmeanof2x_1, 2x_2,.....,2x_nis4

barx`.

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

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113. 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

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114. If the mean deviation about the median of the numbers a, 2a,...50a is 50 then |a| equal

A. 3

B. 4

C. 5

D. 2

Answer: B

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115. 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