MATHS

BOOKS - NDA PREVIOUS YEARS

STATISTICS

Mcqs

1. The production of food grains in Maharashtra is given for the 12 years from 1992 to 2003. Which one of the following representations is most suitable to depict the data?

A. A simple bar diagram

B. A pie diagram

C. A component bar diagram with components arranged in chronological order

D. A broken line graph

Answer: A

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2. In a manufacture of ready-made graments, which average is used to find the most frequent size?

A. Arithmetic mean

B. Geometric mean

C. Mode

D. Harmonic mean

Answer: C

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3. Under what condition will the angle between two regression lines become zero?

A. r = 0

B. Only when $r = +1$

C. Only when $r = -1$

D. $r = \pm 1$

Answer: D

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4. The arithmetic mean of ${}^nC_0, {}^nC_1, {}^nC_2, \ldots, {}^nC_n$, is

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

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

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

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

Answer: D

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5. The standard deviation of n observation $x_1, x_2, \ldots\ldots x_n$ is 6. The standard deviation of another set of n observations $y_1, y_2, \ldots\ldots\ldots\ldots y_n$ is 8. What is the standard

deviation of n observations $x_1 - y_1, x_2 - y_2, \ldots\ldots\ldots\ldots, x_n - y_n$?

A. 10

B. Data insufficient

C. 14

D. 2

Answer:

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6. Following is the frequency distribution of life length in hours of 100 electric bulbs :

Life length of bulbs (in hrs)	8.5 - 13.5	13.5 - 18.5	18.5 - 23.5	23.5 - 28.5	28.5 - 33.5	33.5 - 38.5
No. of bulbs	7	x	40	y	10	2

If the median of life length in 20 hours, then what are the missing frequencies (x, y)?

A. $(28, 13)$

B. $(23, 18)$

C. $(31, 10)$

D. $(25, 16)$

Answer: C

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7. Assertion (A) : We cannot find out the regression of x on y from that of y on x.

Reason (R) : In one equation x is dependent variable and y is

independent whereas in other equation y is dependent variable and x is independent.

A. Both A and R are individually true, and R is the correct explanation of A.

B. Both A and R are individually true but R is not the correct explanation of A.

C. A is true but R is false.

D. A is false but R is true.

Answer: A

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8. If from the point of intersection of two ogives, a perpendicular is drawn on the x-axis, what does the x-coordinate give?

A. Arithmetic mean

B. Mode

C. Median

D. Geometric Mean

Answer: C

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9. The marks scored by two students A and B in six subjects are given below:

A	71	56	45	89	54	44
B	55	74	83	54	38	52

Which one of the following statements is correct?

A. The average scores of A and B are same but A is consistent

B. The average scores of A and B are not same but A is consistent

C. The average scores of A and B are same but B is consistent

D. The average scores of A and B are same but B is consistent

Answer: D

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10. If we join the mid points of the upper horizontal sides of each rectangle of a histogram by straight lines, what is the figure so obtained known as?

A. Frequency curve

B. Frequency polygon

C. Ogive (gt)

D. Ogive (lt)

Answer: B

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11. The definition of Mode fails if:

A. the maximum frequency is repeated

B. the maximum frequency is not repeated

C. the maximum frequency occurs in the middle

D. the curve drawn with the help of given data is symmetrical

Answer: D

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12. A firm employing 30 workers and paying on an average Rs 500 is combined with another firm employing 20 workers paying on an average Rs 600. What is the average pay of the workers of the combined firm?

A. Rs 540

B. Rs 550

C. Rs 560

D. Rs 580

Answer: A

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13. Which one of the following statement is correct ?

A. Median devides distributions into two equal subgroups

B. Third quartile is the same as the 75th percentile

C. The 5th decile is the same as the 50th percentile

D. The 50th decile is the same as the 5th percentile

Answer: D

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14. The mean weight of all the students in a certain class is 60 kg. The mean weight of the boys from the class is 70 kg. while that of the girls is 55 kg. What is the ratio of number of boys to that of girls?

A. $2:1$

B. $1:2$

C. $1:4$

D. $4:1$

Answer: B

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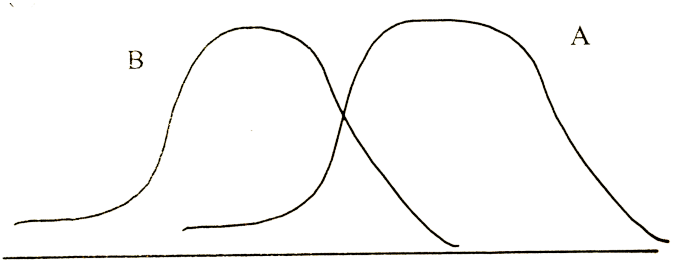
15.



Frequency curves for the distribution of blood pressure readings of certain anthletes before exercise (A) and after exercise (B) are plotted together as shown in the figure above. From the frequency curves, which one of hte following can be concluded?

A. Both distributions are identical

B. Both distributions have the same mean value

C. Both distributions have the same bean value but different variance

D. Both distributions have the same variance but different mean values

Answer: D

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16. If the slopes of the line of regression of Y and X and of X and Y are $30^\circ \text{ and } 60^\circ$ respectively, then r(X, Y) is :

A. -1

B. 1

C. $\frac{1}{\sqrt{3}}$

D. $-\frac{1}{\sqrt{3}}$

Answer: C

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17. Which one of the following measures is the most suitable one of central location for computing intelligence of students?

A. Arithmetic mean

B. Mode

C. Median

D. Geometric Mean

Answer: B

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18. In a binomial distribution, the mean is 4 and the variance is 3. What is the mode?

A. 6

B. 5

C. 4

D. 3

Answer: C

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19. If X is changed to $a + hU$ and Y to $b + kV$, then which one of the following is the correct relation between the regression coefficients b_{XY} and b_{UV}?

A. $hb_{XY} = kb_{UV}$

B. $kb_{XY} = hb_{UV}$

C. $b_{XY} = b_{UV}$

D. $k^2 b_{XY} = h^2 b_{UV}$

Answer: B

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20. Students of two schools appeared for a common test carrying 100 marks. The arthmetic means of their marks for

school I and II are 82 and 86 respectively, If the number of students of school II is 1.5 times the number of students of school I, what is the arithmetic mean of the marks of all the students, of both the school ?

A. 84.5

B. 84.2

C. 84.4

D. This cannot be calculated with the given data

Answer: C

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21. If AM of numbers $x_1, x_2 \ldots . x_n$ is μ, then what is tha AM of the numbers which are increased by 1, 2, 3, ...n respectively?

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

B. μ

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

D. $\mu - \left(\frac{n+1}{2}\right)$

Answer: A

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22. In computing a measure of the central tendency for any set of 51 numbers, which one of the following measures is

well-defined but uses only very few of the numbers of the set?

A. Arithmetic mean

B. Geometric mean

C. Median

D. Mode

Answer: D

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23. The data below record and itemwise quarterly expenditure of a private organization:

Item of expenditure		Amount (in lakh rupees)
1.	Salaries	6.0
2.	TA & DA	4.9
3.	House rent and postage	3.6
4.	All other expenses	5.5
Total :		20.0

The data is represented by a pie diagram. what is the sectrorial angle of the sector with largest area?

A. 120°

B. 108°

C. 100°

D. 90°

Answer: B

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24. While constructing the cumulative frequency column of a frequency distribution, it is noticed that these cumulative frequencies arein arithmetic progression.

Assertion (A) : All the class frequencies are equal.

Reason (R) : when all the class frequencies are equal, the cumulative frequencies are arithmetic progression.

A. Both A and R are individually true, and R is the correct explanation of A.

B. Both A and R are individually true but R is not the correct explanation of A.

C. A is true but R is false.

D. A is false but R is true.

Answer: A

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25. If in a frequency distribution table with 12 classes, the width of each class is 2.5 and the lowest class boundary is 6.1, then what is the upper class boundary of the highest class ?

A. 30.1

B. 27.6

C. 30.6

D. 36.1

Answer: D

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26. Consider the following statements :

The appropriate number of classes while constructing a frequency distribution should be chosen such that

1. the class-frequency that increases to a peak and then declines.

2. the class-frequency should cluster around the class mid point.

Which of the statements given is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

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27. The populations of four towns A, B, C and D as on 2001 are as follows:

Town	Population
A	6863
B	519
C	12185
D	1755

What is the most appropriate diagram to present the above data?

A. Pie diagram

B. Bar chart

C. Cubic chart

D. Histogram

Answer: B

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28. Consider the two series of observations A and B as follows:

Series A	1019	1008	1015	1006	1002
Series B	1.9	0.8	1.5	0.6	0.2

If the standard deviation of the Series A is $\sqrt{28}$, then what is the standard deviation of the Series B?

A. 3.8

B. $\sqrt{0.38}$

C. 0.38

D. $\sqrt{38}$

Answer: B

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29. If n_1 and n_2 are the sizes, G_1 and G_2 the geometric means of two series respectively, then which one of the following expresses the geometric mean (G) of the combined series?

A. $\log G = \frac{n_1 G_1 + n_2 G_2}{n_1 + n_2}$

B. $\log G = \frac{n_2 \log G_1 + n_1 \log G_2}{n_1 + n_2}$

C. $G = \frac{n_1 \log G_1 + n_2 \log G_2}{n_1 + n_2}$

D. None of the above

Answer: B

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30. Let $\bar{x}$ be the mean of n observations $x_1, x_2, \ldots\ldots\ldots, x_n$. If $(a-b)$ is added to each observation, then what is the mean of new set of observations?

A. 0

B. $\bar{x}$

C. $\bar{x}-(a-b)$

D. $\bar{x}(a-b)$

Answer: D

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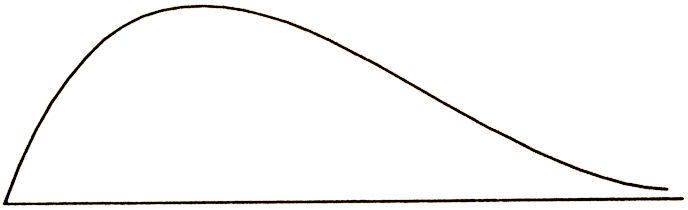
31. 

The frequency curve for the distribution of income in a region is positively skewed as shown in the figure above. Then, for this distribution

A. $Mean < Mode < Median$

B. $Mode < Median < Mean$

C. $Mode < Mean < Median$

D. $Median < Mean < Mode$

Answer: B

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32. What is the value of n for which the numbers 1, 2, 3, ..., n have variance 2?

A. 4

B. 5

C. 6

D. 8

Answer: B

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33. The arithmetic mean of ${}^nC_0, {}^nC_1, {}^nC_2, \ldots, {}^nC_n$, is

A. $(2^n - 1)/n$

B. $2^n/(n+1)$

C. $(2^n)/n$

D. $2^{(n+1)}/(n+1)$

Answer: A

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34. The average age of 20 students in a class is 15 yr. If the teacher's age is included, the average increases by one. What is the teacher's age?

A. 30 yr

B. 21 yr

C. 42 yr

D. 36 yr

Answer: D

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35.

X	1	2	3	4
Frequency	2	3	f	5

The frequency of a discrete variable X with one missing frequency f is given above. If the arithmetic mean of X is $\frac{23}{8}$, what is the value of the missing frequency?

A. 5

B. 6

C. 8

D. 10

Answer: B

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36. For a set of discrete numbers, three measures of central tendency are given below

1. Arithmetic mean

2. Median

3. Geometric mean

Which of the above measures may not have a meaningful definition?

A. 1 only

B. 2 only

C. 3 only

D. All of them are meaningfully defined

Answer: D

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37. Consider the following three methods of collecting data

(1) collecting data from government offices

(2) collecting data from public libraries

(3) collecting data by telephonic interview

Select the correct answer using the code given below

A. All the three methods give data

B. 1 and 2 give secondary and 3 gives primary data

C. 1 and 3 give secondary and 2 gives primary data

D. 2 and 3 give secondary and 1 gives primary data

Answer: B

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38. The arithmetic mean of 4 numbers is 15. The arithmetic mean of another 6 numbers is 12. What is the arthmetic mean of the combined 10 numbers?

A. 12.2

B. 12.8

C. 13.2

D. 13.8

Answer: C

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39. The average sales and standard deviation of sales for four months for a company are as follows:

	Month 1	Month 2	Month 3	Month 4
Average sales	30	57	82	28
Standard deviation of sales	2	3	4	2

During which month are the sales most consistent?

A. Month 1

B. Month 2

C. Month 3

D. Month 4

Answer: C

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40. The marks scored by two students A and B is six subjects are given below

A	71	56	55	75	54	49
B	55	74	83	54	38	52

Which one of the following statements is most appropriate?

A. The average scores of A and B are same but A is consistent

B. The average scores of A and B are not same but A is consistent

C. The average scores of A and B are same but B is consistent

D. The average scores of A and B are same but B is consistent

Answer: B

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41. In a factory, there arc 30 men and 20 women employees. If the average salary of men is Rs 4050 and the average salary of all the employees is Rs 3550, then what is the average salary of woman ?

A. Rs 3800

B. Rs 3300

C. Rs 3000

D. Rs 2800

Answer: D

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42. What is the standard deviation of numbers 7, 9, 11, 13, 15?

A. 2.2

B. 2.4

C. 2.6

D. 2.8

Answer: D

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43. If the monthly expenditure pattern of a person who earns a monthyl salary of Rs 15000 is represented in a pie diagram, then the sector angle of an item on transport expenses meassures 15°. What is his monthely expenditure on transport?

A. Rs 450

B. Rs 625

C. Rs 675

D. cannot be computed from the given data

Answer: B

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44. If $\sum_{i=1}^{n}(x_i - 2) = 110$, $\sum_{i=1}^{n}(x_i - 5) = 20$, then what is the mean?

A. $11/2$

B. $2/11$

C. $17/3$

D. $17/9$

Answer: C

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45. A class consists of 3 sections A, B and C with 35, 35 and 30 students respectively, The arithmetic means of the marks secured by students of sections A and B, who appeared for a test of 100 marks are 74 and 70 respectively, The arithmetic mean of the marks secured by students of section C, who appeared for a test in the same subject which carried 75 marks is 51. What is the average percentage of marks secured by all the 100 student of the three sections?

A. 70

B. 70.8

C. 65

D. 67.5

Answer: B

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46. In a study on the relationship between in vesestment (X) and profit (Y), the following two regression equations were obtained based on the data on X and Y

$3X + Y - 12 = 0$

$X + 2Y - 14 = 0$

What is the mean $\overline{X}$?

A. 6

B. 5

C. 4

D. 2

Answer: D

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47. Following table gives the mean and variance of monthyl demand for four products A, B, C and D in a supermarket

Product	A	B	C	D
Mean demand	60	90	80	120
Variance	12	25	36	16

For which product the demand is consistent?

A. Product A

B. Product B

C. Product C

D. Product D

Answer: D

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48. What is the least value of the standard deviation of 5 integers, no two of which are equal ?

A. $\sqrt{5}$

B. 2

C. $\sqrt{2}$

D. No such least value can be computed

Answer: C

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49. Correlation between two variable is said to be perfect if

A. one variable increases, the other also increases

B. one variable increases, the other decreases

C. one variable increases, the other also increases proportionally

D. one variable increases, the other decreases proportionally

Answer: C

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50. Consider the following statements

I. The data, which are collected from the unit of individual respondents directly for the purpose of certain study on information are known as primary data.

II. The data obtained in a census study are primary data.

Which of tha above statements is/are correct?

A. I only

B. II only

C. Both I and II

D. Neither 1 nor 2

Answer: C

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51. The table below gives an incomplete frequency distribution with two missing frequencies f_1 and f_2

Value of x	Frequency
0	f_1
1	f_2
2	4
3	4
4	3

The total frequency is 18 and the arithmetic mean of x is 2.

What is the value of f_2?

A. 4

B. 3

C. 2

D. 1

Answer: A

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52. The table below gives an incomplete frequency distribution with two missing frequencies f_1 and f_2

Value of x	Frequency
0	f_1
1	f_2
2	4
3	4
4	3

The total frequency is 18 and the arithmetic mean of x is 2.

What is the standard deviation?

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

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

C. $\frac{4}{3}$

D. $\frac{16}{9}$

Answer: C

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53. The table below gives an incomplete frequency distribution with two missing frequencies f_1 and f_2

Value of x	Frequency
0	f_1
1	f_2
2	4
3	4
4	3

The total frequency is 18 and the arithmetic mean of x is 2.

What is the coefficient of variance ?

A. $\frac{200}{3}$

B. $\frac{50\sqrt{5}}{9}$

C. $\frac{600}{\sqrt{5}}$

D. 150

Answer: A

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54. What is the mean deviation of the data 2, 9, 9, 3, 6, 9, 4 ?

A. 2.23

B. 2.57

C. 3.23

D. 3.57

Answer: B

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55. A set of n values $x_1, x_2, \ldots\ldots, x_n$ has standard deviation σ. What is the standard deviation of n values $x_1 + k, x_2 + k \ldots\ldots, x_n + k$?

A. σ

B. $\sigma + k$

C. $\sigma - k$

D. $k\sigma$

Answer: A

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56. The two lines of regression are $8x - 10y = 66$ and $40x - 18y = 214$ and variance of x series is 9. What is the standard deviation of y series?

A. 3

B. 4

C. 6

D. 8

Answer: B

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57. The standard deviation of some consecutive integers is found to be 2. Which of the following statements best

describes the nature of the consecutive integers?

A. The integers are any set of eight consecutive integers

B. The integers are any set of eight consecutive positive integers

C. The integers are any set of seven consecutive integers

D. None of the above

Answer: C

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58. Consider the following data:

	Factory - A	Factory - B
Mean wage of workers	₹ 540	₹ 620
Standard deviation of wages	₹ 40.50	₹ 31

What is the variability in the wages of the workers in Factory - A?

A. $100\ \%$ more than the variability in the wages of the workers in Factory - B

B. $50\ \%$ more than the variability in the wages of the workers in Factory - B

C. $50\ \%$ less than the variability in the wages of the workders in Factory - B

D. $150\ \%$ more than the variability in the wages of the workers in Factory - B

Answer: B

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59. The distributions X and Y with total number of observations 36 and 64, and mean 4 and 3 respectively are combined. What is the mean of the resulting distribution X + Y?

A. 3.26

B. 3.32

C. 3.36

D. 3.42

Answer: C

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60. Consider the following data :

x	5	7	8	4	6
y	2	4	3	2	4

What is the regression equation of y on x?

A. $y = 0.6 + 0.4x$

B. $y = 0.7 + 0.3x$

C. $y = 6 + 5x$

D. $y = 4 + 9x$

Answer: A

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61. The frequency distribution of life of 90 TV tubes whose median life is 17 months is as follows

Life of TV tubes (in months)	No. of TV tubes
0-5	3
5-10	12
10-15	x
15-20	35
20-25	y
25-30	4

Calss	Frequency	cf
0-5	3	3
5-10	12	15
10-15	x	$15+x$
15-20	35	$50+x$
20-25	y	$50+x+y$
25-30	4	$54+x+y$

What is the lower limit of the median class?

A. 10

B. 15

C. 20

D. 25

Answer: B

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62. The frequency distribution of life of 90 TV tubes whose median life is 17 months is as follows

Life of TV tubes (in months)	No. of TV tubes
0-5	3
5-10	12
10-15	x
15-20	35
20-25	y
25-30	4

Calss	Frequency	cf
0-5	3	3
5-10	12	15
10-15	x	$15 + x$
15-20	35	$50 + x$
20-25	y	$50 + x + y$
25-30	4	$54 + x + y$

What is the missing frequency y ?

A. 20

B. 16

C. 15

D. 12

Answer: A

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63. The frequency distribution of life of 90 TV tubes whose median life is 17 months is as follows

Life of TV tubes (in months)	No. of TV tubes
0-5	3
5-10	12
10-15	x
15-20	35
20-25	y
25-30	4

Calss	Frequency	cf
0-5	3	3
5-10	12	15
10-15	x	$15 + x$
15-20	35	$50 + x$
20-25	y	$50 + x + y$
25-30	4	$54 + x + y$

What is the cumulative frequency of the model class?

A. 31

B. 35

C. 66

D. cannot be computed from the given data

Answer: C

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64.

Class Interval	$1-5$	$6-10$	$11-15$	$16-20$
Frequency	3	7	6	5

Consider the following statement is respect of the above frequency distribution.

I. The median is contained in the modal class.

II. The distribution is bell-shaped.

Which of the above statement is/are correct?

A. Only I

B. Only II

C. Both I and II

D. Neither I nor II

Answer: D

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65.

Class Interval	0.10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	5	0	20	5	10

What is the median of the above frequency distribution?

A. 23

B. 24

C. 25

D. 26

Answer: C

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66.

Class Interval	0.10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	5	0	20	5	10

What is the mean of the above frequency distribution?

A. 25

B. 26

C. 27

D. 28

Answer: B

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67. Consider the following statements with regard to correlation coefficient r between random variables x and y.

I. $r = +1$ or -1 means there is a linear relationship between the variables.

II. $-1 \leq r \leq 1$ and r^2 is a measure of the linear relationship between the variables.

Which of the statements given above is/are correct?

A. Only I

B. Only II

C. Both I and II

D. Neither I nor II

Answer: C

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68. If the valuesof a set are measured in cm, what will be the unit of variance?

A. cm

B. cm^2

C. cm^3

D. No unit

Answer: D

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69. What is the cumulative frequency curve of statistical data commonly called?

A. Cartogram

B. Histogram

C. Ogive

D. Pictogram

Answer: C

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70. The average daily income of workers of a factory including that of the onwer in Rs 110. However, if the income of the owner is excluded, the average daily income of the

remaining 9 workers is Rs 76. What is the daily income of the owner?

A. Rs 300

B. Rs 316

C. Rs 322

D. Rs 416

Answer: D

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71. Which one of the following is the mean of the data given below?

x_i	6	10	14	18	24	28	30
f_i	2	4	7	12	8	4	3

A. 17

B. 18

C. 19

D. 20

Answer: C

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72. Students of three sections of a class, having 30, 30 and 40 students appeared for a test of 100 marks. The arithmetic means of the marks of the three sections are $72.2, 69.0 \text{ and } 64.1$ in that order. What is the arithmetic mean of the marks of all the students of the three sections?

A. 66.6

B. 67.3

C. 68

D. 70.6

Answer: C

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73. If the variance of the data 2, 4, 5, 6, 17 is v, then what is the variance of the data 4, 8, 10, 12, 34?

A. v

B. $4v$

C. v^2

D. $2v$

Answer: D

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74. 10 is the mean of a set of 7 observations and 5 is the mean of a set of 3 observations, the mean of the combined set is

A. 15

B. 10

C. 8.5

D. 7.5

Answer: C

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75. Some measures of central tendency for n discrete observations are given below:

1. Arithmetic mean

2. Geometric mean

3. Harmonic mean

4. Median

A desirable property of a measure of central tendency is if every observation is multiplied by c, then the measure of central tendency is also multiplied by c, where $c > 0$. Which of the abvoe measures satisfy the property?

A. 1, 2 and 3 only

B. 1, 2 and 4 only

C. 3 and 4 only

D. 1, 2, 3 and 4

Answer: B

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76. A variate X takes values 2, 3, 4, 2, 5, 4, 3, 2, 1. What is the mode?

A. 2

B. 3

C. 4

D. 5

Answer: A

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77.

Year	Male			Female			Total
	Urban	Rural	Total	Urban	Rural	Total	
1995	280	350			310		1350
1996	370		670	180		450	
1997		130	440		190		
1998	400	280		290			
Total				1060	850		

What is the total population for the year 1997?

A. 810

B. 830

C. 970

D. 1030

Answer: A

Watch Video Solution

78.

Year	Male			Female			Total
	Urban	Rural	Total	Urban	Rural	Total	
1995	280	350			310		1350
1996	370		670	180		450	
1997		130	440		190		
1998	400	280		290			
Total				1060	850		

What is the female urban population in the year 1995?

A. 390

B. 410

C. 430

D. 470

Answer: B

Watch Video Solution

79.

Year	Male			Female			Total
	Urban	Rural	Total	Urban	Rural	Total	
1995	280	350			310		1350
1996	370		670	180		450	
1997		130	440		190		
1998	400	280		290			
Total				1060	850		

What is the urban population in the year 1997?

A. 400

B. 460

C. 490

D. 510

Answer: C

Watch Video Solution

80.

Year	Male			Female			Total
	Urban	Rural	Total	Urban	Rural	Total	
1995	280	350			310		1350
1996	370		670	180		450	
1997		130	440		190		
1998	400	280		290			
Total				1060	850		

What is the total population in the year 1998?

A. 1000

B. 1020

C. 1040

D. 1050

Answer: D

Watch Video Solution

81.

Year	Male			Female			Total
	Urban	Rural	Total	Urban	Rural	Total	
1995	280	350			310		1350
1996	370		670	180		450	
1997		130	440		190		
1998	400	280		290			
Total				1060	850		

What is the difference between the number of females and the number of males in the year 1995?

A. 90

B. 100

C. 110

D. 120

Answer: A

Watch Video Solution

82.

Year	Male			Female			Total
	Urban	Rural	Total	Urban	Rural	Total	
1995	280	350			310		1350
1996	370		670	180		450	
1997		130	440		190		
1998	400	280		290			
Total				1060	850		

In which year is the male population minimum?

A. 1995

B. 1996

C. 1997

D. 1998

Answer: C

Watch Video Solution

83.

Year	Male			Female			Total
	Urban	Rural	Total	Urban	Rural	Total	
1995	280	350			310		1350
1996	370		670	180		450	
1997		130	440		190		
1998	400	280		290			
Total				1060	850		

In which year is the female population maximum?

A. 1995

B. 1996

C. 1997

D. 1998

Answer: A

Watch Video Solution

84.

Year	Male			Female			Total
	Urban	Rural	Total	Urban	Rural	Total	
1995	280	350			310		1350
1996	370		670	180		450	
1997		130	440		190		
1998	400	280		290			
Total				1060	850		

What is the percentage of rural male population (over the whole population) in the year 1998?

A. $\frac{80}{3}\%$

B. $\frac{100}{3}\%$

C. 35%

D. 40%

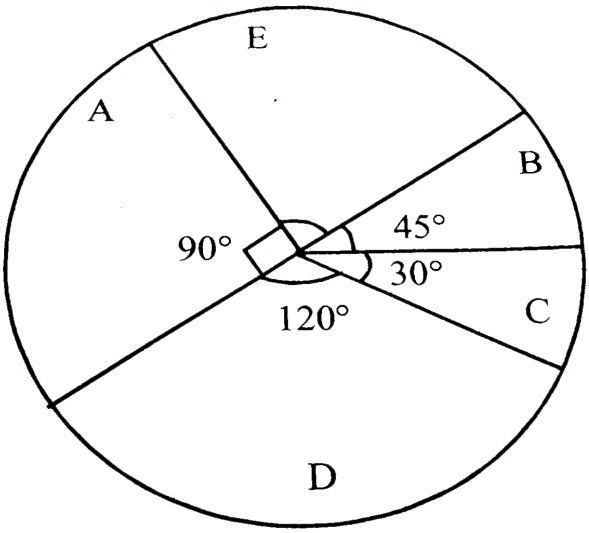
Answer: A

Watch Video Solution

85. The following pie chart gives he distribution of funds in a five year plan under the major heads of development expenditures:

Agriculture (A), Industry (B), Education (C), Employment (D) and Miscellaneous (E)

The total allocation is 36,000 (in crores of rupees).



Which head is allocated maximum funds ?

A. Agriculature

B. Industry

C. Employment

D. Miscellaneous

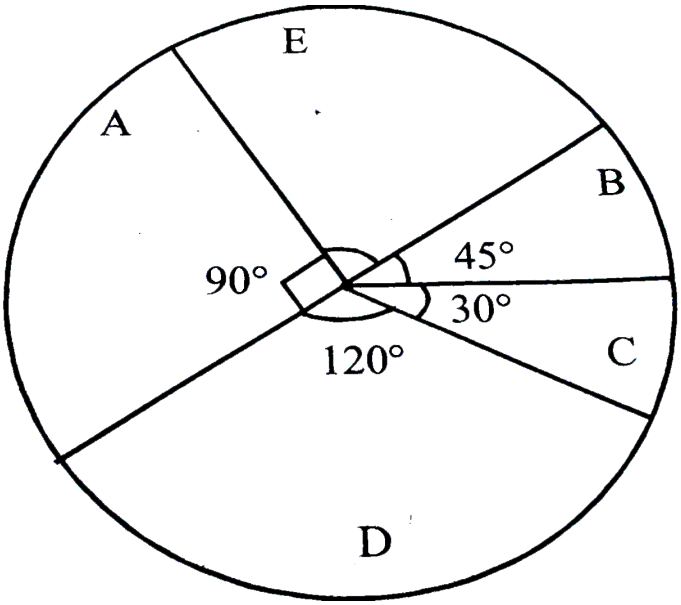
Answer: C

Watch Video Solution

86. The following pie chart gives he distribution of funds in a five year plan under the major heads of development expenditures:

Agriculture (A), Industry (B), Education (C), Employment (D) and Miscellaneous (E)

The total allocation is 36,000 (in crores of rupees).



How much money (in crores) is allocated to Education?

A. 3000

B. 6000

C. 9000

D. 10800

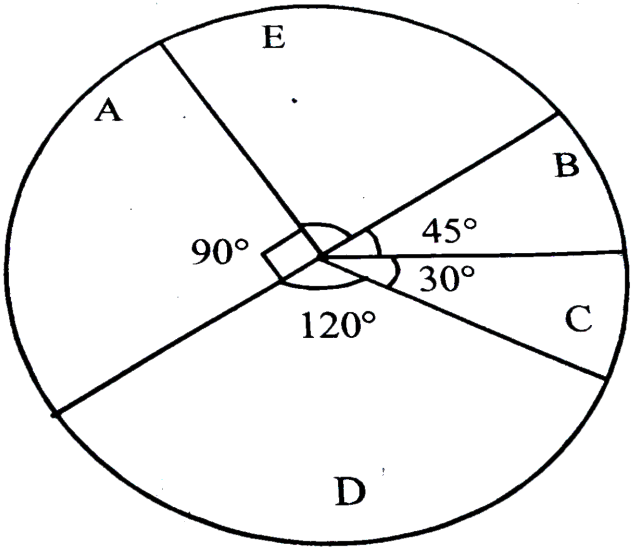
Answer: A

View Text Solution

87. The following pie chart gives he distribution of funds in a five year plan under the major heads of development expenditures:

Agriculture (A), Industry (B), Education (C), Employment (D) and Miscellaneous (E)

The total allocation is 36,000 (in crores of rupees).



How much money (in crores) is allocated to both Agriculture and Employment?

A. 20000

B. 21000

C. 24000

D. 27000

Answer: B

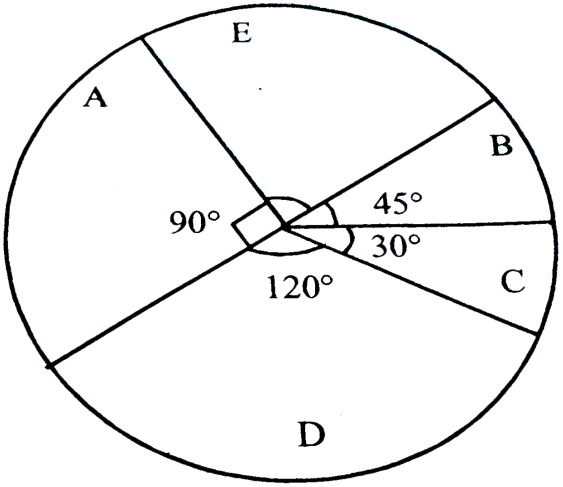
View Text Solution

View Text Solution

88. The following pie chart gives he distribution of funds in a five year plan under the major heads of development expenditures:

Agriculture (A), Industry (B), Education (C), Employment (D) and Miscellaneous (E)

The total allocation is 36,000 (in crores of rupees).



How much excess money (in crores) is allocated to Miscellaneous over Education?

A. 3600

B. 4200

C. 4500

D. 4800

Answer: C

View Text Solution

89. What is the median of the distribution 3, 7, 6, 9, 5, 4, 2?

A. 5

B. 6

C. 7

D. 8

Answer: A

Watch Video Solution

90. What is the arithmetic mean of first 16 natural numbers with weights being the number itself?

A. $\frac{17}{2}$

B. $\frac{33}{2}$

C. 11

D. $\frac{187}{2}$

Answer: A

Watch Video Solution

91. What is the mode for the data 20, 20, 20, 21, 21, 21, 21, 21, 22, 22, 22, 22, 22, 22, 22, 23, 23, 23, 23, 23, 24, 24, 25?

A. 7

B. 21

C. 22

D. 25

Answer: C

Watch Video Solution

92. Consider the following statement:

1. A continuous random variable can take all values in an interval.

2. A random variable which takes a finite number of values is necessarily discrete.

3. Construction of a frequency distribution is based on data which are discrete.

Which of the above statements are correct ?

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: B

Watch Video Solution

93. Consider the following statements:

1. Two independent variables are always uncorrelated.

2. The coefficient of correlation between two variables X and Y is positive when X decreases then Y decreases. Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Watch Video Solution

94. A variate X takes value 2, 9, 3, 7, 5, 4, 3, 2, 10. What is the median?

A. 2

B. 4

C. 7

D. 9

Answer: B

Watch Video Solution

95. The mean of 10 observations is 5. If 2 is added to each observation and then multiplied by 3, then what will be the new mean?

A. 5

B. 7

C. 15

D. 21

Answer: D

Watch Video Solution

96. The arithmetic mean of first n odd natural numbers, is

A. n

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

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

D. $n+1$

Answer: A

Watch Video Solution

97. The arithmetic mean of numbers a, b, c, d, e is M. What is the value of $(a-M)+(n-M)+(n-M)+(d-M)+(e-M)$?

A. M

B. $a+b+c+d+e$

C. 0

D. 5 M

Answer: C

 Watch Video Solution

98. The algebraic sum of the deviations of 20 observations measured from 30 is 2. What would be the mean of the observations?

A. 30

B. 32

C. 30.2

D. 30.1

Answer: D

Watch Video Solution

99. The median of 27 observations of a variable is 18. Three more observations are made and the values of these observations are 16, 18 and 50. What is the median of these 30 observations?

A. 18

B. 19

C. 25.5

D. Can not be determined due to insufficient data

Answer: B

Watch Video Solution

100. Frequency curve may be:

A. symmetrical

B. positive skew

C. negative skew

D. all the above

Answer: D

Watch Video Solution

101. The monthly family expenditure (in percentage) on different items are as follows:

Food	Rent	Cloth	Transport	Education	Others
38	19	18	–	9	6

If the total monthly expenditure is Rs 9000, then what is the expenditure on transport?

A. Rs 180

B. Rs 1000

C. Rs 900

D. Rs 360

Answer: C

Watch Video Solution

102. If the mena of few observations is 40 and standard deviation is 8, then what is the coefficient of variation?

A. 1%

B. 10%

C. 20%

D. 30%

Answer: C

Watch Video Solution

103. What is the standard deviation of 7, 9, 11, 13, 15?

A. 2.4

B. 2.5

C. 2.7

D. 2.8

Answer: D

Watch Video Solution

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

A. Mean

B. Median

C. Mode

D. Standard deviation

Answer: D

Watch Video Solution

105. Let X and Y be two related variables. The two regression lines are given by $x - y + 1 = 0$ and $2x - y + 4 = 0$. The two regression lines pass through the point:

A. $(-4, -3)$

B. $(-6, -5)$

C. $(3, -2)$

D. $(-3, -2)$

Answer: D

Watch Video Solution

106. The marks obtained by 13 student in a test are 10, 3, 10, 12, 6, 7, 9, 6, 7, 10, 8, 6, 7. The median of this data is?

A. 7

B. 8

C. 9

D. 10

Answer: B

Watch Video Solution

107. Consider the following statements:

1 Both variance and standard deviaiton are measures of variability in the population.

2. Standard deviation is the square of the variance.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

Watch Video Solution

108. Consider the following frequency destribution :

Class interval	$0-10$	$10-20$	$20-30$	$30-40$	$40-50$
Frequency	14	x	27	y	15

If the total of the frequencies is 100 and mode is 25, then which one of the following is correct?

A. $x = 2y$

B. $2x = y$

C. $x = y$

D. $x = 3y$

Answer: C

Watch Video Solution

109. The average marks obtained by the students in a class are 43. If the average marks obtained by 25 boys are 40 and

the average marks obtained by the girl students are 48, then what is the number of girl students in the class?

A. 15

B. 17

C. 18

D. 20

Answer: A

Watch Video Solution

110. Marks obtained by 7 students in a subject are 30, 55, 75, 90, 50, 60, 39. The number of students securing marks less than the mean marks is

A. 7

B. 6

C. 5

D. 4

Answer: D

 Watch Video Solution

111. Variance is always independent of the change of

A. origin but not scale

B. scale only

C. both origin and scale

D. None of the above

Answer: A

Watch Video Solution

112. If two lines of regression are perpendicular, then the correlation coefficient r is

A. 2

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

C. 0

D. None of the above

Answer: C

Watch Video Solution

113. The standard deviation of the observation 5, 5, 5, 5, 5 is

A. 0

B. 5

C. 20

D. 25

Answer: A

Watch Video Solution

114. The mean of 20 observation is 12. On checking, it was found that two observation were wrongly copied as 3 and 6.

If wrong observation are replaced by correct values 8 and 4, then the correct mean is

A. 15

B. 15.15

C. 15.35

D. 16

Answer: B

Watch Video Solution

115. The arithmetic mean of the squares of the first n natural numbers is

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

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

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

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

Answer: C

Watch Video Solution

116. Consider the following statements :

1. Both the regression coefficients have same sign.

2. If one of the regression coefficients is greather than unity, the other must be less than unity.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Watch Video Solution

117. Which one of the following measures is determined only after the construction of cumulative frequency distribution?

A. Arithmetic mean

B. Mode

C. Median

D. Geometric Mean

Answer: C

Watch Video Solution

118. Coefficient of correlation is the measure of

A. central tendency

B. dispresion

C. both central tendency and dispersion

D. neither central tendency nor dispersion

Answer: D

Watch Video Solution

119. What is the variance of the first 11 natural numbers ?

A. 10

B. 11

C. 12

D. 13

Answer: A

Watch Video Solution

120. Consider the following statements:

1. The algebraic sum of the deviations of a set of n value from its arithmetic mean is zero.

2. In the case of frequency distribution, mode is the value of variable which corresponds to maximum frequency.

Which of the statements above given is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Watch Video Solution

121. Consider the following statements :

1. Pie diagrams are suitable for catagorical data.

2. The arc length of a sector of a pie diagram is proportional to the value of the component represented by the sector.

Which of the statements given above is/are correct/

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Watch Video Solution

122. The variance of 20 observation is 5. If each observation is multiplied by 2, then what is the new variance of the resulting observation?

A. 5

B. 10

C. 20

D. 40

Answer: C

Watch Video Solution

123. For two variables x and y, the two regression coefficients are $b_{yx} = -3/2$ and $b_{xy} = -1/6$. The

correlation coefficient between x and y is :

A. $-1/4$

B. $1/4$

C. $-1/2$

D. $1/2$

Answer: C

Watch Video Solution

124. The variance of numbers $x_1, x_2, x_3, \ldots . x_n$ is V. Consider the following statements:

If every x_1 is increased by 2, the variance of the new set of

the new set of numbers is V.

2 If the numbers x_i is squared, the variance of the new set is V^2.

Which of the following statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Watch Video Solution

125. What is the mean of the squares of the first 20 natural numbers ?

A. 151.5

B. 143.5`

C. 65

D. 72

Answer: B

Watch Video Solution

126. The cumulative frequency of the largest observed value must always be :

A. Less than the total number of observations

B. Greater than the total number of observation

C. Equal to total number of observation

D. Equal to mid point of the last class interval

Answer: C

Watch Video Solution

127. Let X denote the number of scores which exceed 4 in 18, tosses of a symmetrical die. Consider the following statements:

1. The arithmetic mean of X is 6.

2. The standard deviation of X is 2.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Watch Video Solution

128. Number of telephone cells received in 245 succesive one minute intervals at an exchange is given belwo in the following frequency distribution.

Number of calls	0	1	2	3	4	5	6	7
Frequency	14	21	25	43	51	40	39	12

What is the mean of the distribution?

A. 3.76

B. 3.84

C. 3.96

D. 4.05

Answer: A

Watch Video Solution

129. Number of telephone cells received in 245 succesive one minute intervals at an exchange is given belwo in the following frequency distribution.

Number of calls	0	1	2	3	4	5	6	7
Frequency	14	21	25	43	51	40	39	12

What is the median of the distribution?

A. 3.5

B. 4

C. 4.5

D. 5

Answer: B

Watch Video Solution

130. Number of telephone cells received in 245 succesive one minute intervals at an exchange is given belwo in the following frequency distribution.

Number of calls	0	1	2	3	4	5	6	7
Frequency	14	21	25	43	51	40	39	12

What is the mode of the distribution?

A. 3

B. 4

C. 5

D. 6

Answer: B

Watch Video Solution

131. The mean and standrad deviation of 100 items are 50, 5 and that of 150 items are 40, 6 respectively.

What is the combined mean of all 250 items?

A. 43

B. 44

C. 45

D. 46

Answer: B

Watch Video Solution

132. The mean and standrad deviation of 100 items are 50, 5 and that of 150 items are 40, 6 respectively.

What is the combined standard deviation of all 250 items?

A. 7.1

B. 7.3

C. 7.5

D. 7.7

Answer: C

Watch Video Solution

133. The mean and standrad deviation of 100 items are 50, 5 and that of 150 items are 40, 6 respectively.

What is the variance of all 250 items?

A. 50.6

B. 53.3

C. 55.6

D. 59.6

Answer: C

Watch Video Solution

134. Consider the following statements in respect of histogram :

1. The histogram is a suitable representation of a frequency distribution of a continuous variable.

2. The area included under the whole histogram is the total frequency.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Watch Video Solution

135. The regression lines will be perpendicular to each other if the coefficient of correlation r is equal to

A. 1 only

B. 1 or -1

C. -1 only

D. 0

Answer: D

Watch Video Solution

136. If $\bar{x}$ and $\bar{y}$ are the means of two distrubutions such that $\bar{x} < \bar{y}$ and $\bar{z}$ is the mean of the combined distrubution, then which one of the following statements is correct?

A. $\bar{x} < \bar{y} < \bar{z}$

B. $\bar{x} > \bar{y} > \bar{z}$

C. $\bar{z} = \dfrac{\bar{x} + \bar{y}}{2}$

D. $\bar{x} < \bar{z} < \bar{y}$

Answer: D

Watch Video Solution

137. What is the mean deviation about the mean for the data 4, 7, 8, 9, 10, 12, 13, 17?

A. 2.5

B. 3

C. 3.5

D. 4

Answer: B

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138. The variance of 20 observation is 5. If each observation is multiplied by 2, then what is the new variance of the resulting observation?

A. 5

B. 10

C. 20

D. 40

Answer: C

Watch Video Solution

139. The mean and the variance 10 observations are given to be 4 and 2 respectively. If every observation is multiplied by 2, the mean and the variance of the new series will be respectively.

A. 8 and 20

B. 8 and 4

C. 8 and 8

D. 80 and 40

Answer: C

Watch Video Solution

140. Which one of the following measures of central tendency is used in construction of index numbers?

A. Harmonic mean

B. Geometric mean

C. Median

D. Mode

Answer: B

Watch Video Solution

141. The correlation coefficient between two variables X and Y is found to be 0.6. All the observations on X and Y are transformed using the transformations $U = 2 - 3X$ and $V = 4Y + 1$. The correlation coefficient between the transformed variables U and V will be

A. -0.5

B. $+0.5$

C. -0.6

D. $+0.6$

Answer: C

Watch Video Solution

142. Which of the following statements is/are correct in respect of regression coefficients?

1. It measures the degree of linear relationship between two variables.

2. It gives the value by which one variable changes for a unit change in the other variable.

Select the correct answer using the code given below.

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Watch Video Solution

143. A set of annual numerical data, comparable over the years, is given for the last 12 years.

1. The data is best represented by a broken line graph, each corner (turning point) representing the data of one year.

2. Such a graph depicts the chronological change and also enables one to make a short-term forecast.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Watch Video Solution

144. The mean of five numbers is 30. If one number is excluded, their mean becomes 28. The excluded number is

A. 28

B. 30

C. 35

D. 38

Answer: D

Watch Video Solution

145. The 'less than' ogive curve and the 'more than' ogive curve intersect at

A. median

B. mode

C. arithmetic mean

D. None of the above

Answer: A

Watch Video Solution

146. The geometric mean of the observation $x_1, x_2, x_3, \ldots\ldots\ldots, n$ is G_1, The geometric mean of the observation $y_1, y_2, y_3, \ldots\ldots y_n$ is G_2. The geometric mean

of observations

$\frac{x_1}{y_1}, \frac{x_2}{y_2}, \frac{x_3}{y_3}, \ldots\ldots \frac{x_n}{y_n}$ us

A. $G_1 G_2$

B. $\ln(G_1 G_2)$

C. $\frac{G_1}{G_2}$

D. $\ln\left(\frac{G_1}{G_2}\right)$

Answer: C

Watch Video Solution

147. The arithmetic mean of 1, 8, 27, 64,.....up to an terms is given by

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

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

C. $\frac{n(n+1)^2}{4}$

D. $\frac{n^2(n+1)^2}{4}$

Answer: C

Watch Video Solution

148. The regression coefficients of a bivariate distribution are -0.64 and $-.36$. Then the correlation coefficient of the distribution is

A. 0.48

B. -0.48

C. 0.50

D. -0.50

Answer: B

Watch Video Solution

149. What is the mean deviation from the mean of the numbers 10, 9, 21, 16, 24?

A. 5.2

B. 5.0

C. 4.5

D. 4.0

Answer: A

Watch Video Solution

150. If the total number of observations is $20, \sum x_i = 1000$ and $\sum x_i^2 = 84000$, then what is the variance of the distribution?

A. 1500

B. 1600

C. 1700

D. 1800

Answer: C

Watch Video Solution

151. The mean of the series $x_1, x_2, \ldots x_n$ is $\overline{X}$. If x_2 is replaced by λ then the new mean is

A. $\overline{X} - x_2 + \lambda$

B. $\frac{\overline{X} - x_2 - \lambda}{n}$

C. $\frac{\overline{X} - x_2 + \lambda}{n}$

D. $\frac{n\overline{X} - x_2 + \lambda}{n}$

Answer: D

Watch Video Solution

152. For the data

3, 5, 1, 6, 5, 9, 5, 2, 8, 6

the mean, median and mode are x, y and z respectively.

Which one of the following is correct?

A. $x = y \neq z$

B. $x \neq y = z$

C. $x \neq y \neq z$

D. $x = y = z$

Answer: D

Watch Video Solution

153. Consider the following statements in respect of a histogram:

1. The total area of the rectangles in a histogram is equal to

the total area bounded by the corresponding frequnecy polygon and the x-axis.

2. When class intervals are unequal in a frequency distribution, the area of the rectangle is proportional to the frequency.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

 Watch Video Solution

154. Consider the following statements:

1. The mean and median are equal in symmetric distribution.

2. The range is the difference between the maximum value and the minimum value in the data.

3. The sum of the areas of the rectangles in the histogra is equal to the total area bounded by the frequency polygon and the horizontal axis.

Which of the above statements are correct?

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

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155. The scores of 15 students in an examination were recorded as 10,5,8,16,18,20,8,10,16,20,18,11,16,14 and 12, After calculating the mean, median and mode an error is found. One of the values is wrongly written as 16 instead of 18. Which of the following measures of central tendency will change? a) Mean and median (b) median and mode (c) mode only (d) median and mode

A. Mean and median

B. Median and mode

C. mode only

D. Mean and mode

Answer: D

Watch Video Solution

156. For 10 observations on price (x) and supply(y), the following data was obtained $\sum x = 130$ $\sum y = 220$ $\sum x^2 = 2288$ $\sum y^2 = 5506$ and $\sum xy = 3467$ what is the line of regression of y on x

A. $y = 0.91x + 0.74$

B. $y = 1.02x + 8.74$

C. $y = 1.02x - 7.02$

D. $y = 0.91x - 7.02$

Answer: B

Watch Video Solution

157. In a study of two groups, the following resutls were obtained

	Group A	Group B
Sample Size	22	23
Sample mean	20	25
Sample standard deviation	10	12

Which of the following statements is correct?

A. Group A is less variable than Group B because Group A's standard deviation is smaller.

B. Group A is less variable than Group B because Group A's sample size is smaller.

C. Group A is less variable than Group B because Group A's sample mean is smaller.

D. Group A is less variable than Group B because Group A's coefficient of variation is smaller.

Answer: D

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158. Consider the following statements in respect of class intervals of grouped frequency distribution:

1. Class intervals need out be mutually exclusive.

2. Class intervals should be exhaustive.

3. Class intervals need not be of equal width.

Which of the above statements are correct?

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: B

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159. Two variates, x and y, are uncorrelated and have standard deviations σ_x and σ_y respectively. What is the correlation coefficient between $x + y$ and $x - y$?

A. $\frac{\sigma_x \sigma_y}{\sigma_x^2 + \sigma_y^2}$

B. $\frac{\sigma_x + \sigma_y}{2\sigma_x \sigma_y}$

C. $\frac{\sigma_x^2 - \sigma_y^2}{\sigma_x^2 + \sigma_y^2}$

D. $\frac{\sigma_y - \sigma_x}{\sigma_x \sigma_y}$

Answer: C

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160. A random sample of 20 people is classified in the following table according to their ages :

Age	Frequency
$15 - 25$	2
$25 - 35$	4
$35 - 45$	6
$45 - 55$	5
$55 - 65$	3

What is the mean age of this group of people?

A. 41.0

B. 41.5

C. 42.0

D. 42.5

Answer: B

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161. If the covariance between x and y is 30, variance of x is 25 and variance of y is 144, then what is the correlation coefficient?

A. 0.4

B. 0.5

C. 0.6

D. 0.7

Answer: B

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162. The variance of 20 observation is 5. If each observation is multiplied by 3, then what is the new variance of the resulting observation?

A. 5

B. 10

C. 15

D. 45

Answer: D

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163. The mean of a group of 100 observation was found to be 20. Latter it was found that four observation were incorrect, which were recorded as 21, 21, 18 and 20. What is the mean if the incorrect observation are obtained?

A. 18

B. 20

C. 21

D. 22

Answer: B

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164. If two regression lines between height (x) and weight (y) are $4y - 15x + 410 = 0$ and $30x - 2y - 825 = 0$, then what will be the correlation coefficient between height and weight?

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

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

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

D. $\frac{3}{4}$

Answer: B

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165. In an examination, $40\,\%$ of candidates got second class. When the data are represented by a pie chart, what is the angle corresponding to second class?

A. 40°

B. 90°

C. 144°

D. 320°

Answer: C

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166. Consider the following statements :

Statement 1 : Range is not a good measure of dispersion.

Statement 2 : Range is highly affected by the existence of extreme values.

Which one of the following is correct in respect of the above statements?

A. Both Statements 1 and Statement 2 are correct and Statement 2 is the correct explanation of Statement 1

B. Both Statements 1 and Statement 2 are correct and Statement 2 is not the correct explanation of Statement 1

C. Statement 1 is correct but Statement 2 is not correct

D. Statement 2 is correct but Statement 1 is not correct

Answer: A

167. The data are moderately non-symmetrical, then which one of the following empirical relationships is correct?

A. $2 \times \text{Standard deviation} = 5 \times \text{Mean deviation}$

B. $5 \times \text{Standard deviation} = 2 \times \text{Mean deviation}$

C. $4 \times \text{Standard deviation} = 5 \times \text{Mean deviation}$

D. $5 \times \text{Standard deviation} = 4 \times \text{Mean deviation}$

Answer: C

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168. Data can be represented in which of the following forms?

1. Textual form

2. Tabular form

3. Graphical form

Select the correct answer using the code given below.

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

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169. for given statistical data, the graphs for less than ogive and more than ogive are drawn. If the point at which the two curves intersect as P, then abscissa of point P gives the value of which one of the folloiwng measures of central tendency?

A. Median

B. Mean

C. Mode

D. Geometric Mean

Answer: A

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170. If the regression coefficient of x on y and y on x are $-\frac{1}{2}$ and $-\frac{1}{8}$ respectively, then what is the correlation coefficient between x and y?$-\frac{1}{4}$

A. $-\frac{1}{16}$

B. $-\frac{1}{16}$

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

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

Answer: A

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171. A sample of 5 observations has mean 32 and median 33.

Later it is found that an observation was recorded

incorrectly as 40 instead of 35. If we correct the data, then which one of the following is correct?

A. The mean and median remain the same

B. The median remains the same but the mean will decrease

C. The mean and median both will decrease

D. The mean remains the same but median will decrease

Answer: B

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172. Consider the following statements:

1. Coefficient of variation depends on the unit of

measurement of the variable.

2. Range is a measure of dispersion.

3. Mean deviation is least when measured about median.

Which of the above statements are correct?

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: B

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173. Given that the arithmetic mean and standard deviation of a sample of 15 observations are 24 and 0 respectively. Then which one of the following is the arithmetic mean of the smallest five observation in the data?

A. 0

B. 8

C. 16

D. 24

Answer: D

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174. Which one of the following can be considered as appropriate pair of values of regression coefficient of y on x and regression coefficient of x on y?

A. $(1, 1)$

B. $(-1, 1)$

C. $\left(-\frac{1}{2}, 2\right)$

D. $\left(\frac{1}{3}, \frac{10}{3}\right)$

Answer: A

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175. It is given that $\overline{X} = 10, \overline{Y} = 90, \sigma_X = 3, \sigma_Y = 12$ and $r_{XY} = 0.8$. The

regression equation of X on Y is

A. $Y = 3.2X + 58$

B. $X = 3.2Y + 58$

C. $X = -8 + 0.2Y$

D. $y = -8 + 0.2x$

Answer: C

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176. The following table gives the monthly expenditure of two families:

	Expenditure (in ₹)	
Items	Family A	Family B
Food	3,500	2,700
Clothing	500	800
Rent	1,500	1,000
Education	2,000	1,800
Miscellaneous	2,500	1,800

In constructing a pie diagram to the above data, the radii of the circles are to be chosen by which one of the following ratios?

A. $1:1$

B. $10:9$

C. $100:91$

D. $5:4$

Answer: B

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177. The mean of the values 0,1,2,3,....n, having corresponding weights C(n,0),C(n,1),C(n,2).....C(n,n) respectively is:

A. 2n

B. n+1

C. n

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

Answer: B

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178. Consider the following statements :

1. Variance is unaffected by change of origin and change of

scale.

2. Coefficient of variance is independent of the unit of observation.

Which of the statements given above is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

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179. The coefficient of correlation when coefficients of regression are 0.2 and 1.8 is

A. 0.36

B. 0.2

C. 0.6

D. 0.9

Answer: C

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180. In a Binominal distribution, the mean is three times its variance. What is the probality to exactly 3 successes out of 4 trials?

A. $\frac{80}{243}$

B. $\frac{40}{243}$

C. $\frac{20}{243}$

D. $\frac{10}{243}$

Answer: A

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181. If the correlation coefficient between x and y is 0.6, covariance is 27 and variance of y is 25, then what is the variance of x?

A. $\frac{9}{5}$

B. $\frac{81}{25}$

C. 9

D. 81

Answer: D

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182. Let $\bar{x}$ be the mean of $x_1, x_2, x_3, \ldots\ldots\ldots, x_n$. If $x_i = a + cy_i$ for some constants a and c, then what will be the mean of $y_1, y_2, y_3, \ldots\ldots\ldots, y_n$?

A. $a + c\bar{x}$

B. $a - \frac{1}{c}\bar{x}$

C. $\frac{1}{c}\bar{x} - a$

D. $\frac{\bar{x} - a}{c}$

Answer: D

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183. Consider the following statements :

1. If the correlation coefficient $r_{xy} = 0$, then the two lines of regression are parallel to each other.

2. If the correlation coefficient $r_{xy} = \pm 1$, then the two lines of regression are perpendicular to each other.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

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184. If $4x - 5y + 33 = 0$ and $20x - 9y = 107$ are two lines of regression, then what are the value of $\bar{x}$ and $\bar{y}$ respectively?

A. 12 and 18

B. 18 and 12

C. 13 and 17

D. 17 and 13

Answer: C

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185. Consider the following statements:

1. Mean in independent of change in scale and change in origin.

2. Variance is independent of change in scale but not in origin.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

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186. Consider the following statements:

1. Sum of deviations from mean is always zero.

2. The sum of absolute deviations is minimum when taken around median.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

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187. What is the median of the numbers $4.6, 0, 9.3, -4.8, 7.6, 2.3, 12.7, 3.5, 8.2, 6.1, 3.9, 5.2$?

A. 3.8

B. 4.9

C. 5.7

D. 6

Answer: B

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188. In a test in Mathematics, 20% of the students obtained "first class". If the data are represented by a Pie -

chart, what is the central angle corresponding to "first class"?

A. 20°

B. 36°

C. 72°

D. 144°

Answer: C

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189. The mean and standard deviation of a set of values are 5 and 2 respectively. If 5 is added to each value, then what is the coefficient of variation for the bew set of values?

A. 10

B. 20

C. 40

D. 70

Answer: B

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190. Calculate the mean and standard deviation of first natural numbers.

A. $\sigma = \frac{N^2 - 1}{12}$

B. $\sigma = \sqrt{\frac{N^2 - 1}{12}}$

C. $\sigma = \sqrt{\frac{N - 1}{12}}$

D. $\sigma = \sqrt{\frac{N^2 - 1}{6N}}$

Answer: B

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191. The correlation coefficient computed from a set of 30 observation is 0.8. Then the percentage of variation not explained by linear regression is

A. $80\ \%$

B. $20\ \%$

C. $64\ \%$

D. $36\ \%$

Answer: D

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192. The mean age of a combined group of men and women is 25 yrs . If mean age of men is 26 and that of women is 21 , then percentage of men and women in the group , is ,

A. 20, 80

B. 40, 60

C. 60, 40

D. 80, 20

Answer: D

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193. Consider the following statements:

1. If 10 is added to each entry on a list then the average increase by 10.

2. If 10 is added to each entry on a list, then the standard deviation increase by 10.

3. If each entry on a list is doubled, then the average doubles.

Which of the above statement are correct?

A. 1, 2 and 3

B. 1 and 2 only

C. 1 and 3 only

D. 2 and 3 only

Answer: C

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194. The variance of 25 observations is 4. If 2 is added to each observation, then the new variance of the resulting observation is

A. 2

B. 4

C. 6

D. 8

Answer: B

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195. If the regression coefficient of Y on X is -6, and the correlation coefficient between X and Y $-\frac{1}{2}$, then the regression coefficient of X on Y would be

A. $\frac{1}{24}$

B. $-\frac{1}{24}$

C. $-\frac{1}{6}$

D. $\frac{1}{6}$

Answer: B

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196. The set of bivariate observation $(x_1, y_1), (x_2, y_2), \ldots . (xn, yn)$ are such that all the values are distinct and all the observation fall on a straight line with non-zero slope. Then the possible values of the correlation coefficient between x and y are

A. 0 and 1 only

B. 0 and -1 only

C. 0, 1 and -1

D. -1 and 1 only

Answer: D

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197. An alalysis of monthly wages paid to the workers in two firms A and B belonging to the same industry the following result:

	Firm A	Firm B
Number of workers	500	600
Average monthly wage	₹ 1860	₹ 1750
Variance of distribution of wages	81	100

The average of monthly wages and variance of distribution of wages of all workers in the firms A and B taken together are

A. Rs 1860, 100

B. Rs 1750, 100

C. Rs 1800m, 81

D. None of the above

Answer: D

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198. Which one of the following can be obtained from an ogive?

A. Mean

B. Median

C. Geometric mean

D. Mode

Answer: B

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199. In any discrete series (when all values are not same) is x represents mean deviation about mean and y represents standard deviation, then which one of the following is correct?

A. $y \geq x$

B. $y \leq x$

C. $x = y$

D. $x < y$

Answer: D

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200. In which one of the following cases would you except to get a negative correlation?

A. The ages of husbands and wives

B. Shoe size and intelligence

C. Insurance companies profits and the number of claims they have to pay

D. Amount of rainfall and yield of crop

Answer: C

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201. The mean of 100 observation is 50 and the standard deviation is 10. If 5 is subtracted from each observation and then it is divided by 4, then what will be the new mean and the new standard respectively?

A. 45, 5

B. 11.25, 1.25

C. 11.25, 2.5

D. 12.5. 2.5

Answer: C

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202. Consider the following statements:

1. The algebraic sum of deviations of a set of values from their arithmetic mean is always zero.

2. Arithmetic mean gt Median gt Mode for a symmetric distribution.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

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203. Let the correlation coefficient between X and Y be 0.6. Random variables Z and W are defined as $Z = X + 5$ and $W = \frac{Y}{3}$. What is the correlation coefficient between Z and W?

A. 0.1

B. 0.2

C. 0.36

D. 0.6

Answer: D

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204. If all the natural numbers between 1 and 20 are multiplied by 3, then what is the variance of the resulting series?

A. 99.75

B. 199.75

C. 299.25

D. 399.25

Answer: C

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