KD EDUCATION ACADEMY [9582701166] Street no. 21 A-1 block Bengali colony sant nagar burari delhi -110084

Time : 6 hour | STD 9 Maths | Total Marks : 160

kd sir 90+ questions ch- 12 Statistics

* Choose the right answer from the given options. [1 Marks Each] [48]

1. The mean of 100 items was found to be 64. Later on it was discovered that two items were misread as 26 and 9 instead of 36 and 90 respectively. The correct mean is:

(A) 64.91 (B) 65.31 (C) 64.61 (D) 64.86

2. The mean of six numbers is 23. If one of the numbers is excluded, the mean of the remaining numbers becomes 20. The excluded number is:

(A) 36 (B) 37 (C) 39 (D) 38

3. If the arithmetic mean of 7, 5, 13, x and 9 is 10, then the value of x is:

(A) 12 (B) 10 (C) 14 (D) 16

4. In the following distribution:

Wages(in Rs)	No of workers
More than 140	12
More than 130	27
More than 120	60
More than 110	105
More than 100	124
More than 90	141
More than 80	150

The number of workers having wage range (in Rs.) 110-120 is:

(A) 45 (B) 50 (C) 55 (D) 40

5. The empirical relation between mean, mode and median is:

(A) Mode = 3 Median - 2 Mean. (B) Mode = 2 Median - 3 Mean. (C) Median = 3 Mode - 2 Mean. (D) Mean = 3 Median - 2 Mode.

6. The mean of n observations is $\overline{X}$. If each observation is multiplied by k, the mean of new observations is:

(A) $k\overline{X}$ (B) $\frac{\overline{X}}{k}$ (C) $\overline{X}+k$ (D) $\overline{X}-k$

7. Write the correct answer in the following:

To draw a histogram to represent the following frequency distribution:

Class intervai	5-10	10-15	15-25	25-45	45-75
Frequency	6	12	10	8	15

The adjusted frequency for the class 25-45 is:

(A) 6 (B) 5 (C) 3 (D) 2

8. The median of the data 78, 56, 22, 34, 45, 54, 39, 68, 54, 84 is:

(A) 54 (B) 56 (C) 45 (D) 49.5

9. $\text{Mode}+\frac{2}{3}(\text{Mean - Mode})=$

(A) Mode (B) None of these (C) Mean (D) Median

10. The mean of 50 observations is 39. If one of the observations which was 23 was replaced by 43, the resulting mean will be:

(A) 38.4 (B) 39 (C) 40.3 (D) 39.4

11. In a histogram, each class rectangle is constructed with base as:

(A) Size of the class (B) Frequency (C) Class interval (D) Range

12. There are 50 numbers. Each number is subtracted from 53 and the difference between the mean of the numbers so obtained is found to be -3.5. The mean of the given number is:

(A) 49.5 (B) 53.5 (C) 56.5 (D) 46.5

13. The mean weight ofa six boys in a group is 48kg. The individual weights of five of them are 51kg, 45kg, 49kg, 46kg and 44kg. The weight of the 6^{th} boy is:

(A) 52kg. (B) 52.8kg. (C) 53kg. (D) 47kg.

14. If the mean of five observations x, x + 4, x + 6 and x + 8 is 11 then the value of x is:

(A) 5 (B) 6 (C) 7 (D) 8

15. The mean of 30 observations is 12. If 25 is subtracted from the sum of observations, then remaining sum is:

(A) 385 (B) 335 (C) 365 (D) 375

16. If the mode of the data is 45 and the median is 33, then the mean is:

(A) 33 (B) 27 (C) None of these (D) 30

17. In a grouped frequency distribution, the class intervals are 1-20, 21-40, 41-60,.... then the class width is:

(A) 19 (B) 20 (C) 30 (D) 10

18. For which set of data does the median equal the mode?

(A) 3, 3, 4 (B) 3, 3, 4, 5 (C) 3, 4, 5, 6, 6 (D) 3, 3, 4, 5, 6

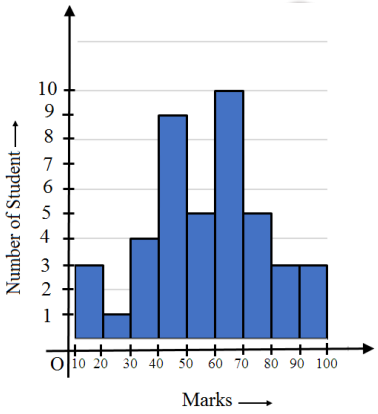
19. A grouped frequency distribution table with classes of equal sizes using 63-72 (72 included) as one of the class is constructed for the following data 30, 32, 45, 54, 74, 78, 108, 112, 66, 76, 88, 40, 14, 20, 15, 35, 44, 66, 75, 84, 95, 96, 102, 110, 88, 74, 112, 14, 34, 44. How many classes can we have?

(A) 12 (B) 11 (C) 10 (D) 9

20. The mean of the marks scored by 50 students was found to be 39. Later on it was discovered that a score of 43 was misread as 23. The correct mean is:

(A) 39.4 (B) 39.8 (C) 39.2 (D) 38.6

21. In the given graph, the number of students who scored 60 or more marks is:



(A) 19 (B) 20 (C) 21 (D) 22

22. $\text{Mode} + \frac{3}{2}(\text{Median - Mode}) =$

(A) Mode (B) Median (C) None of these (D) Mean

23. Median of a data is given by:

(A) $l + \left(\frac{\frac{n}{2} - cf}{f}\right) \times h$ (B) $l + \left(\frac{\frac{n}{2} - f}{cf}\right) \times h$ (C) $l - \left(\frac{\frac{n}{2} - cf}{f}\right) \times h$ (D) $l + \left(\frac{\frac{n}{2} - cf}{f}\right) \div h$

24. A student collects information about the number of school going children in a locality consisting of a hundred households. The data collected by him is:

(A) Arrayed data (B) Grouped data (C) Primary data (D) Secondary data

25. The median of the data arranged in ascending order 8, 9, 12, 18, (x + 2), (x + 4), 30, 31, 34, 39, is 24. The value of x is:

(A) 22 (B) 21 (C) 20 (D) 24

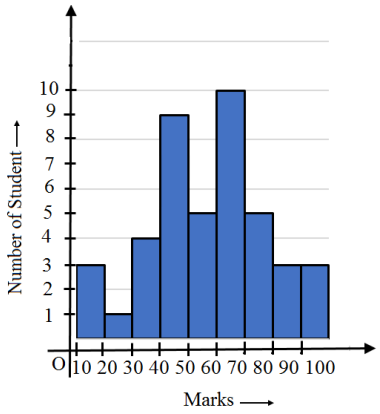
26. The median of the following data: 0, 2, 2, 2, -3, 5, -1, 5, 5, -3, 6, 6, 5, 6 is:

(A) 0 (B) 2 (C) 3.5 (D) -1.5

27. Vihaan has marks of 92, 85, and 78 in three mathematics tests. In order to have an average of exactly 87 for the four math tests, he should obtain:

(A) 90 marks (B) 93 marks (C) 92 marks (D) 91 marks

28. In the given graph, the number of students who scored 60 or more marks is:



(A) 22 (B) 20 (C) 21 (D) 19

29. The median of the numbers 84, 78, 54, 56, 68, 22, 34, 45, 39, 54 is:

(A) 45 (B) 49.5 (C) 54 (D) 56

30. The mean of 100 observations is 50. If one of the observations which was 50 is replaced by 150, the resulting mean will be:

(A) 52 (B) 50.5 (C) 51.5 (D) 51

31. If the mean of five observations x, x + 2, x + 4, x + 6 and x + 8 is 11 then the value of x is:

(A) 6 (B) 8 (C) 7 (D) 5

32. Class mark of a particular class is 9.5 and the class size is 6, then the class interval is:

(A) 6.5 - 12.5 (B) 15.5 - 27.5 (C) 3.5 - 15.5 (D) 12.5 - 18.5

33. Out of sixteen observations arranged in an ascending order, the 8^{th} and 9^{th} observations are 25 and 27. Then, the median is:

(A) 26.5 (B) 25 (C) 26 (D) 27

34. If the mean of x, x + 3, x + 5, x + 7, x + 10 is 9, the mean of the last three observation is:

(A) $10\frac{1}{3}$ (B) $10\frac{2}{3}$ (C) $11\frac{1}{3}$ (D) $11\frac{2}{3}$

35. The median and mode of distribution are 20 and 18, then the mean is:

(A) 22 (B) 21 (C) 20 (D) 18

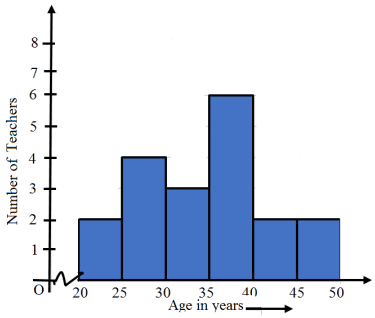
36. If x is the mean of $x_1, x_2, \ldots x_n$, y is the mean of $y_1, y_2, \ldots x_n, \ldots y_n$, then z the mean of $x_1, x_2, \ldots x_n, y_1, y_2, \ldots yn$ is equal to:

(A) $\frac{x+y}{2}$ (B) $\frac{x+y}{n}$ (C) $\frac{x+y}{2n}$ (D) $x+y$

37. To analyse the election results, the data is collected from a newspaper. The data thus collected is known as:

(A) Raw data. (B) Secondary data. (C) Primary data. (D) Grouped data.

38. The graph given below shows the frequency distribution of the age of 22 teachers in a school. The number of teachers whose age is less than 40 years is:



(A) 17 (B) 16 (C) 15 (D) 14

39. If each observation of the data is increased by 5, then their mean.

(A) Remains the same. (B) Is increased by 5. (C) Is decreased by 5. (D) Becomes 5 times the original mean.

40. The runs scored by 11 members of a cricket team are.

15, 34, 56, 27, 43, 29, 31, 13, 50, 20, 0.

The median score is:

(A) 31 (B) 20 (C) 29 (D) 27

41. The mean of the following data is 8.

x	3	5	7	9	11	13
y	6	8	15	p	8	4

Then, the value of p is:

(A) 23 (B) 24 (C) 25 (D) 21

42. The mean of 50 observations is 39. If one of the observations which was 23 was replaced by 43, the resulting mean will be:

(A) 40.3 (B) 39.4 (C) 38.4 (D) 39

43. If the mean of five observations x, x + 2, x + 4, x + 6, x + 8, is 11, then the mean of first three observations is:

(A) 9 (B) 11 (C) 13 (D) None of these.

44. The mean of a set of seven numbers is 81. If one of the numbers is discarded, the mean of the remaining numbers is 78. The value of discarded number is:

(A) 99 (B) 101 (C) 98 (D) 100

45. Sheila received x marks in two of her tests and y marks in three other tests. Her average score in all the five tests in terms of x and y is:

(A) $\frac{3x+2y}{5}$ (B) $\frac{2x+3y}{5}$ (C) $\frac{2x+3y}{2}$ (D) $\frac{3x+2y}{3}$

46. The mean of five observations is 15. If the mean of first three observations is 14 and that of last three is 17, then the third observation is:

(A) 31 (B) 18 (C) 29 (D) 32

47. The median of the data arranged in ascending order 8, 9, 12, 18, (x + 2), (x + 4), 30, 31, 34, 39 is 24. The value of x is:

(A) 20 (B) 21 (C) 24 (D) 22

48. Mode of the data 15, 17, 15, 19, 14, 18, 15, 14, 16, 15, 14, 20, 19, 14, 15 is:

a. 14
b. 15
c. 16
d. 17

*** A statement of Assertion (A) is followed by a statement of Reason (R). [5]**
Choose the correct option.

49. **Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

Assertion: The mode of the given data: 4, 6, 5, 9, 3, 2, 7, 7, 6, 5, 4, 9, 10, 10, 3, 4, 7, 6, 9, 9 is 6.

Reason: The value which appears very frequently in a data is called median.

a. Both Assertion and reason are correct and reason is correct explanation for Assertion.
b. Both Assertion and reason are correct but reason is not correct explanation for Assertion.
c. Assertion is correct but reason is false.
d. Both Assertions and reason are false.

50. **Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

Assertion: The mean of the data: 4, 10, 5, 9, 12 is 8.

Reason: Mean $= \frac{(4+10+5+9+12)}{5} = \frac{40}{5} = 8$

a. Both Assertion and reason are correct and reason is correct explanation for Assertion.
b. Both Assertion and reason are correct but reason is not correct explanation for Assertion.
c. Assertion is correct but reason is false.
d. Both Assertions and reason are false.

51. **Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

Assertion: The median of the data 13, 15, 16, 17, 19, 20 is $\frac{30}{2}$

Reason: Median $= \frac{(16+17)}{2} = \frac{33}{2}$

a. Both Assertion and reason are correct and reason is correct explanation for Assertion.
b. Both Assertion and reason are correct but reason is not correct explanation for Assertion.
c. Assertion is correct but reason is false.
d. Both Assertions and reason are false.

52. **Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

Assertion: Mode of given data 110, 120, 130, 120, 110, 140, 130, 120, 140, 120 is 120.

Reason: The observation with maximum frequency is called mode.

a. Both Assertion and reason are correct and reason is correct explanation for Assertion.
b. Both Assertion and reason are correct but reason is not correct explanation for Assertion.
c. Assertion is correct but reason is false.
d. Both Assertions and reason are false.

53. **Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

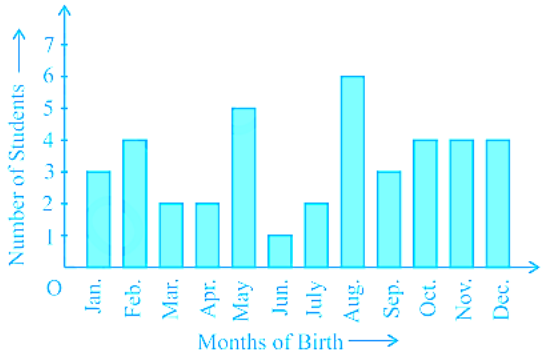
Assertion: The median of the following observation 0, 1, 2, 3, x , x + 2, 8, 9, 11, 12 arranged in ascending order is 63, then the value of x is 62.

Reason: Median of n even observations is $\frac{\left(\frac{n}{2}\right)^{th}\text{term}+\left(\frac{n}{2}+1\right)^{th}\text{term}}{2}$

a. Both assertion and reason are true and reason is the correct enatixplaon of assertion.
b. Both assertion and reason are true but reason is not the correct explanation of assertion.
c. Assertion is true but reason is false.
d. Assertion is false but reason is true.

* Answer the following questions. [3 Marks Each] [6]

54. In a particular section of Class IX, 40 students were asked about the months of their birth and the following graph was prepared for the data so obtained:



Observe the bar graph given above and answer the following questions:

i. How many students were born in the month of November?
ii. In which month were the maximum number of students born?

55.

Form the frequency distribution table and Find the mean of the marks obtained by 30 students of Class IX of a school, as given below:
10, 20, 36, 92, 95, 40, 50, 56, 60, 70, 92, 88, 80, 70, 72, 70, 36, 40, 36, 40, 92, 40, 50, 50, 56, 60, 70, 60, 60, 88

* Questions with calculation. [4 Marks Each] [36]

56. The mean marks (out of 100) of boys and girls in an examination are 70 and 73, respectively. If the mean marks of all the students in that examination is 71, find the ratio of the number of boys to the number of girls.

57. Following table shows a frequency distribution for the speed of cars passing through at a particular spot on a high way:

Class interval (km/ h)	Frequency
30-40	3
40-50	6
50-60	25
60-70	65
70-80	50
80-90	28
90-100	14

Draw a histogram and frequency polygon representing the data above.

58. The marks scored by 55 students in a test are given below:

Marks	0-5	5-10	10-15	15-20	20-25	25-30	30-35
No. of students	2	6	13	17	11	4	2

Prepare a cumulative frequency table.

59. The weights of new born babies are as follows:
2.3, 2.2, 2.1, 2.7, 2.6, 2.5, 3.0, 2.8, 2.8, 2.9, 3.1, 2.5, 2.8, 2.7, 2.9, 2.4.

i. Rearrange the weights in descending order.
ii. What is the highest weight?
iii. What is the lowest weight?
iv. Determine the range?
v. How many babies were born on that day?
vi. How many babies weigh below 2.5Kg?
vii. How many babies weigh more than 2.8Kg?
viii. How many babies weigh 2.8Kg?

60. The final marks in mathematics of 30 students are as follows:
53, 61, 48, 60, 78, 68, 55, 100, 67, 90, 75, 88, 77, 37, 84, 58, 60, 48, 62, 56, 44, 58, 52, 64, 98, 59, 70, 39, 50, 60

i. Arrange these marks in ascending order 30 to 39 one group 40 to 49 second group etc.

Now answer the following:

ii. What is the lowest score?
iii. What is the highest score?
iv. What is the range?
v. If 40 is the pass mark how many failed?
vi. How many have scored 75 or more?
vii. Which observations between 50 and 60 have not actually appeared?
viii. How many have scored less than 50?

61. Given below is a cumulative frequency distribution table showing ages of the people living in a locality:

Age in years	No. of years
Above 108	0
Above 96	1
Above 84	3
Above 72	5
Above 60	20
Above 48	158
Above 36	427
Above 24	809
Above 12	1026
Above 0	1124

Prepare a frequency distribution table.

62. The blood groups of 30 students of class VIII are recorded as follows:
A, B, O, O, AB, O, A, O, B, A, O, B, A, O, O, A, AB, O, A, A, O, O, AB, B, A, O, B, A, B, O
Represent this data in the form of a frequency distribution table. Find out which is the most common and which is the most rarest blood group among these students.

63. Given below is a table which shows the yearwise strength of a school. Represent this data by a bar graph.

Year	2012-13	2013-14	2014-15	2015-16	2016-17
Number of students	800	975	1100	1400	1625

64. The birth rate per thousand in five countries over a pariod of time is shown below:

Country	China	India	Germany	UK	Sweden
Birth rate per thousand	42	35	14	28	21

Represent the above data by a bar graph.

* Answer the following questions. [5 Marks Each] [65]

65. The following table gives the distribution of students of two sections according to the marks obtained by them:

Section A		Section B	
Marks	Frequency	Marks	Frequency
0-10	3	0-10	5
10-20	9	10-20	19
20-30	17	20-30	15
30-40	12	30-40	10
40-50	9	40-50	1

Represent the marks of the students of both the sections on the same graph by frequency polygons.

66. The runs scored by two teams A and B on the first 60 balls in a cricket match are given below :

Number of balls	Team A	Team B
1-6	2	5
7-12	1	6
13-18	8	2
19-24	9	10
25-30	4	5
31-36	5	6
37-42	6	3
43-48	10	4
49-54	6	8
55-60	2	10

Represent the data of both the teams on the same graph by frequency polygons.
[Hint: First make the class intervals continuous.]

67. A random survey of the number of children of various age groups playing in a park was found as follows

Age (in years)	Number of children
1-2	5
2-3	3
3-5	6
5-7	12
7-10	9
10-15	10
15-17	4

Draw a histogram to represent the data above.

68. 100 surnames were randomly picked up from a local telephone directory and a frequency distribution of the number of letters in the English alphabets in the surnames was found as follows :

Number of letters	Number of surnames
1-4	6
4-6	30
6-8	44
8-12	16
12-20	4

i. Draw a histogram to depict the given information.

ii. Write the class interval in which the maximum number of surnames lie.

69. A family with a monthly income of ₹ 20,000 had planned the following expenditures per month under various heads:

Heads	Expenditure (in thousand rupees)
Grocery	4
Rent	5
Education of children	5
Medicine	5
Fuel	2
Entertainment	1
Miscellaneous	1

Draw a bar graph for the data above.

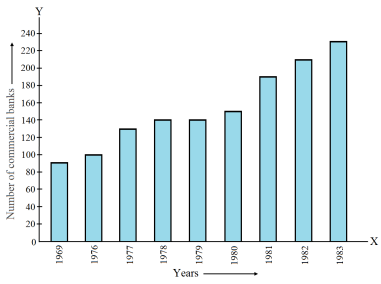
70. The following table gives the quantity of goods (in crores of rupees)

Year	1950–51	1960–61	1965–66	1970–71	1980–81	1982–83
Quantity of goods (in crore tonnes)	9	16	20	20	22	26

Represent this information with the help of a bar graph.

71. Read the bar graph shown in the figure and answer the following questions:

i. What is the information given by the bar graph?



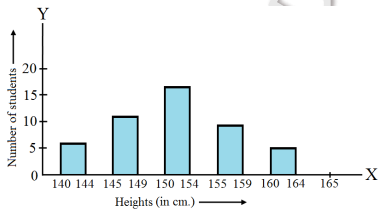
ii. What was the number of commercial banks in 1977?

iii. What is the ratio of the number of commercial banks in 1969 to that in 1980?

iv. State whether true or false:

The number of commercial banks in 1983 is less than double the number of commercial banks in 1969.

72. The following bar graph represents the heights (in cm) of 50 students of Class XI of a particular school. Study the graph and answer the following questions:



i. What percentage of the total number of students have their heights more than 149cm?

ii. How many students in the class are in the range of maximum height of the class?

iii. The school wants to provide a particular type of tonic to each student below the height of 150cm to improve his height. If the cost of the tonic for each student comes out to be Rs. 55, how much amount of money is required?

iv. How many students are in the range of shortest height of the class?

v. State whether true or false:

a. There are 9 students in the class whose heights are in the range of 155-159cm.

b. Maximum height (in cm) of a student in the class is 17.

c. There are 29 students in the class whose heights are in the range of 145-154cm.

d. Minimum height (in cm) of a student is the class is in the range of 140-144cms.

e. The number of students in the class having their heights less than 150cm is 12.

f. There are 14 students each of whom has height more than 154cm.

73. The population of Delhi State in different census years is as given below:

Census year	1961	1971	1981	1991	2001
Population in Lakhs	30	55	70	110	150

Represent the above information with the help of a bar graph.

74. Read the following bar graph and answer the following questions:

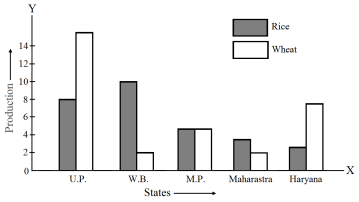
i. What information is given by the bar graph?

ii. Which state is the largest producer of rice?

iii. Which state is the largest producer of wheat?

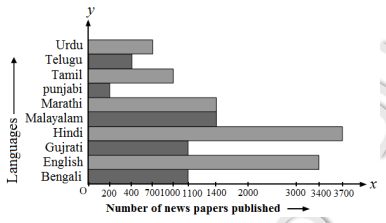
iv. Which state has total production of rice and wheat at its maximum?

v. Which state has total production of wheat and rice at its minimum?



75. The bar graph shown in figure represents the circulation of newspapers in 10 languages.

Study the bar graph and answer the following questions:



i. What is the total number of newspapers published in Hindi, English, Urdu, Punjabi, and Bengali?

ii. What percent is the number of newspapers published in Hindi of the total number of newspapers?

iii. Find the excess of the number of newspapers published in English over those published in Urdu.

iv. Name two pairs of languages which publish the same number of newspapers.

v. State the language in which the smallest number of newspapers are published.

vi. State the language in which the largest number of newspapers are published.

vii. State the language in which the number of newspapers published is between 2500 and 3500.

viii. State whether true or false:

a. The number of newspapers published in Malayalam and Marathi together is less than those published in English.

b. The number of newspapers published in Telugu is more than those published in Tamil.

76. Construct a histogram for the following frequency distribution:

Class interval	5-12	13-20	21-28	29-36	37-44	45-52
Frequency	6	15	24	18	4	9

77. The heights of 75 students in a school are given below:

Height (in cm)	130-136	136-142	142-148	148-154	154-160	160-166
Number of students	9	12	18	23	10	3

Draw a histogram to represent the above data.

----- "Dreams are not that you see in sleep,dream are those that doesn't let you sleep'' -----