



## MATHS

# BOOKS - MCGROW HILL EDUCATION MATHS (HINGLISH)

## STATISTICS

### Multiple Choice Questions

1. The statistical data are of two types. These types are

A. technical data and presentation data

B. primary data and secondary data

C. primary data and personal data

D. none of the above

**Answer: B**



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

A. class interval

B. frequency

C. cumulative frequency

D. range

**Answer: D**





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3. The number of times a particular item occurs in a class interval is called its

- A. mean
- B. frequency
- C. cumulative frequency
- D. none of these

**Answer: B**



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4. The mean wage of 150 labourers working in a factory running three shifts with 60, 40 and 50 labourers is Rs 114.00. The mean wage of 60 labourers working in the first shift is Rs 121.50 and that of 40 labourers working in the second shift is Rs 107.75, then the mean wage of those working in the third shift is

A. Rs 110

B. Rs 100

C. Rs 120

D. Rs 115.75

**Answer: A**



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5. Kavita obtained 16, 14, 18 and 20 marks (out of 25) in Maths in weekly tests in the month of Jan 2000, then mean marks of Kavita is

A. 16

B. 16.5

C. 17

D. 17.5

**Answer: C**



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6. Which one of the following is not correct?

A. statistics is liable to be misused

B. the data collected by the investigator to be used by himself are called primary data

C. statistical laws are exact

D. statistics do not take into account of individual cases

**Answer: C**



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7. The weighted means of of first  $n$  natural numbers whose weights are equal to the squares of corresponding numbers is

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

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

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

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

**Answer: C**



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**8.** If the mean of  $x_1$  and  $x_2$  is  $M_1$  and that of  $x_1, x_2, x_3, x_4$  is  $M_2$ , the mean of  $x_1, x_2/a, x_3 + a, x_4 - a$  is

A.  $M_2 + \frac{(a - 1)(x_1 - 2M_1)}{4a}$

B.  $M_1 + \frac{(a - 1)x_1 - 2M_2}{4a}$

C.  $\frac{M_2}{4a} + (a - 1)x_1 + 2M_1$

D.  $\frac{M_1}{4a} + (a - 1)x_2 + 2M_2$

**Answer: A**



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9. If the mean of  $x$  and  $1/x$  is  $M$ , then the mean of  $x^2$  and  $\frac{1}{x^2}$  is

A.  $M^2$

B.  $M^2 / 4$

C.  $2M^2 - 1$

D.  $2M^2 + 1$

**Answer: C**



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10. If the mean of  $x$  and  $\frac{1}{x}$  is  $M$ , the mean of  $x^3$  and  $\frac{1}{x^3}$  is

A.  $\frac{M(M^2 - 3)}{2}$

B.  $M(4M^2 - 3)$

C.  $M^3$

D.  $M^3 + 3$

**Answer: B**



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11. In an examination, a candidate scores the following percentage of marks. English-44, Hindi-58, Maths—74, Physics-61, Chemistry—62. If weights 2, 4, 4, 5, 3 respectively,

are allotted to these subjects, then the candidate's weighted mean percentage is

A. 61

B. 61.5

C. 62

D. 62.5

**Answer: B**



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**12.** If the standard deviation for the marks obtained by a student in monthly tests is 36 then the variance is

A. 6

B. 36

C. 1296

D. none of these

**Answer: C**



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### 13. Mean of Ungrouped data

A. Mean =  $\frac{\sum x_i}{\sum f}$

B. Mean =  $\frac{\sum x}{n}$

C. Mean =  $\frac{\sum fx}{\sum n}$

D. Mean =  $a + \frac{\sum fx}{n}$

**Answer: B**



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**14.** If the variable takes values  $0, 1, 2, \dots, n$  with frequencies

$$q^n, {}^n C_1 q^{n-1} p, {}^n C_2 q^{n-2} p^2, \dots, {}^n C_n p^n, \text{ where } p + q = 1,$$

then the mean is

A.  $(n + q)p$

B.  $(n + p)n$

C.  $np$

D.  $n + pq$

**Answer: C**

15. The average monthly income of a four members of a family is Rs 610.25, after the marriage of one girl the average income of the family becomes Rs 650.75 then the salary of married girl is

A. Rs 488.25

B. Rs 488.75

C. Rs 479.75

D. Rs 489.25

**Answer: B**

16. The mean of  $x_1$  and  $x_2$  is  $M_1$  and that of  $x_1, x_2, x_3 \dots x_4$  is  $M_2$ , then the mean of  $ax_1, ax_2, x_3/a$  is

A.  $\frac{M_1 + M_2}{2}$

B.  $\frac{aM_1 + (M_2/a)}{2}$

C.  $\frac{1}{2a} [(a^2 - 1)M_1 + 2M_2]$

D.  $\frac{1}{2a} [2(a^2 - 1)M_1 + M_2]$

**Answer: C**



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17. If  $M$  and  $M_g$  represents the mean of the raw and grouped data, respectively then

A.  $M > M_g$

B.  $M \geq M_g$

C.  $M_g \geq M$

D.  $M = M_g$

**Answer: D**

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18. The mean of  $x_1, x_2, \dots, x_{50}$  is  $M$ , if every  $x_i, i = 1, 2, \dots, 50$  is replaced by  $x_i/50$  then the mean is

A.  $M$

B.  $M + \frac{1}{50}$

C.  $\frac{50}{M}$

D.  $\frac{M}{50}$

**Answer: D**



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**19.** If the first five elements of the set  $x_i + 5, i = 1, 2, 3, \dots, 5$  and the next five elements are replaced by  $x_j - 5, j = 6, \dots, 10$  then the mean will change by

A. 0

B. 5

C. 10

D. 25



**Answer: A**



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**20.** The mean of the cubes of the first  $n$  natural numbers is

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

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

C.  $\frac{n(n+1)(n+2)}{8}$

D.  $n^2 + n + 1$

**Answer: B**



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21. If  $M = \frac{x_1 + x_2 \dots + x_{20}}{20}$  then the value of

$$\sum_{i=1}^{20} \frac{(x_i - M)}{20} \text{ is}$$

A.  $\frac{19M}{20}$

B. 1

C. 0

D.  $1/20$

**Answer: C**



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22. Arithmetic mean of first n natural numbers is \_\_\_\_\_.

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

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

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

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

**Answer: B**



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**23.** The arithmetic mean of the squares of the first  $n$  natural numbers is

A.  $n^2 + 1$

B.  $\frac{n^4 + 1}{n}$

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

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

**Answer: C**



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**24.** A school has 20 teachers, one of them retires at the age of 60 years and a new teacher replaces in this change reduces the average age of the staff by 2 years, the age of new teacher is

- A. 28 years
- B. 25 years
- C. 20 years
- D. 18 years

**Answer: C**

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25. The mean of the following distribution is

Class	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30
Frequ.	4	5	7	12	7	5

A. 15

B. 16

C. 17

D. 18

**Answer: B**

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26. The ages (in years) of a family of 6 members are 1, 5, 12, 15, 38 and 40. The standard deviation is found to be 15.9. After 10 years the standard deviation is

- A. increased
- B. decreased
- C. remains same
- D. none of these

**Answer: C**

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

A.  $a + nd$

B.  $a - nd$

C.  $(a + n)d$

D.  $ad + n$

**Answer: A**



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**28.** If each observation is multiplied by  $\frac{1}{3}$  then the mean of the new data will be

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

B. 3 times

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

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

**Answer: A**



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**29.** The mean of first 10 natural numbers.

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

B.  $\frac{11}{2}$

C.  $\frac{13}{2}$

D. 5

**Answer: B**



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30. The value of  $\sum_{i=1}^n (x_i - \bar{x})$  where  $\bar{x}$  is the arithmetic mean of  $x_i$  is

A. 1

B. 0

C.  $n\bar{x}$

D. none of these

**Answer: B**



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31. The average of 15 numbers is 18. The average of first 8 is 19 and that last 8 is 17, then the 8th number is

A. 15

B. 16

C. 18

D. 20

**Answer: C**



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**32.** The attendance of a class of 45 boys for 10 days is given as 40, 42, 30, 35, 45, 44, 41, 38, 44 and 41 then the mean attendance of a class is

A. 39

B. 40

C. 41

D. 43

**Answer: B**



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**33.** The average of  $n$  numbers  $x_1, x_2, \dots, x_n$  is  $M$ . If  $x_n$  is replaced by  $x'$ , then the new average is

A.  $M - x_1 + x'$

B.  $\frac{(n-1)M + x'}{n}$

C.  $\frac{nM - x_1 + x'}{n}$

D.  $\frac{M - x_1 + x'}{n}$

**Answer: C**



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**34.** A candidate obtained the following percentage of marks in an examination English 60, Maths 90, Physics 75, Chemistry 66. If weights 2, 4, 3, 3 are allotted to these subjects respectively, then the weight mean is given by

A.  $\frac{60 + 90 + 75 + 66}{2 + 4 + 3 + 3}$

B.  $\frac{60 \times 2 + 90 \times 4 + 75 \times 3 + 66 \times 3}{2 + 4 + 3 + 3}$

C.  $\frac{60 \times 2 + 90 \times 4 + 75 \times 3 + 66 \times 3}{4}$

D.  $\frac{60 + 90 + 75 + 66}{4}$

**Answer: B**

35. A student obtained the following marks per centage in an examination English - 50, Accounts - 75, Economics - 60, B Std.-80, Hindi - 55. If weights are 2, 3, 3, 2, 1, respectively allotted to the subjects, his weighted mean is

A. 
$$\frac{50 + 75 + 60 + 80 + 55}{2 + 3 + 3 + 2 + 1}$$

B.

$$\frac{(50 \times 2) + (75 \times 3) + (60 \times 3) + (80 \times 2) + (55 \times 1)}{5}$$

C. 
$$\frac{50 \times 2 + 75 \times 3 + 60 \times 3 + 80 \times 2 + 55 \times 1}{2 + 3 + 3 + 2 + 1}$$

D. none

**Answer: C**

**36.** A contractor employed 18 labourers at Rs 12 per day, 10 labourers at Rs 13.50 per day, 5 labourers at Rs 25 per day and 2 labourers at Rs 42 per day. The average wage of a labourer per day is

- A. Rs 16
- B. Rs 20
- C. Rs 24
- D. Rs 28

**Answer: A**

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37. In a class test in English 10 students scored 75 marks, 12 students scored 60 marks, 8 scored 40 marks and 3 scored 30 marks, the mode for their score is

A. 75

B. 30

C. 60

D. 25

**Answer: C**



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38. Find the mean of first five prime numbers

A. 3

B. 3.6

C. 7

D. 5.6

**Answer: D**



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**39.** The algebraic sum of the deviations of a set of value of a data from their mean is

A.  $> 0$

B. 0

C.  $< 0$



D. none

**Answer: B**



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**40.** A train travels first 300 km at an average rate of 30 km per hour and further travels the same distance at an average rate of 60 km per hour, then the average speed over the whole distance is

A. 35 km per hour

B. 40 km per hour

C. 42 km per hour

D. 45 km per hour

**Answer: B**



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**41.** The average age of a group of 8 members is same as it was 3 years ago, when a young member is substituted for an old member, the incoming member is younger to the outgoing member by

A. 11 years

B. 24 years

C. 28 years

D. 16 years

**Answer: B**

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42. The mean of ten items is 17 and if each item is increased by 5, then the new mean will be

A. 22

B. 67

C. 17

D. 85

**Answer: A**

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**43.** The mean of 20 items of a data is 5 and if each item is multiplied by 3, then the mean will be

- A. 5
- B. 10
- C. 15
- D. 20

**Answer: C**

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**44.** The numbers 3, 5, 6 and 4 have frequencies of  $x$ ,  $x + 2$ ,  $x - 8$  and  $x + 6$ , respectively! If their mean is 4 then the value of  $x$  is

A. 5

B. 6

C. 7

D. 8

**Answer: C**



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**45.** The weights of 9 apples are 50, 60, 65, 62, 67, 70, 64, 45, 48 grams . Their mean weight is

A. 60.5 gram

B. 60 gram

C. 59 gram

D. 62 gram

**Answer: C**

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**46.** The mean of all the factors of 12 is

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

B.  $4\frac{3}{2}$

C.  $4\frac{2}{3}$

D. 12

**Answer: C**

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47. The arithmetic mean of 6, 10,  $x$  and 12 is 8 . The value of  $x$  is

A. 3

B. 4

C. 5

D. 6

**Answer: B**



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48. The mean of first 8 natural numbers is

A. 4.5

B. 5

C. 4

D. 5.5

**Answer: A**



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**49.** The mean of 6 numbers is 20. If one number is deleted, their mean is 15. The deleted number is

A. 40

B. 42

C. 45



D. 48

**Answer: C**



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**50.** The sum of the deviations of the variates 6, 8, 10, 16, 20,

24

A.  $-1$

B. 1

C. 0

D. 4

**Answer: C**





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51. The mean of 20 numbers is 9. If 3 is added to every number what will be the new mean?

A. 9

B. 12

C. 27

D. 15

**Answer: B**



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**52.** The mean of 8 numbers is 25. If each number is multiplied by 2, the new mean will be

A. 12.5

B. 25

C. 40

D. 50

**Answer: D**



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**53.** The mean age of combined group of men and women is 35 years. If the mean age of men is 36 years and that of

women is 32 years. Find the percentage of men and women in the group.

A. Men = 75 %, women = 25 %

B. Men = 70%, women = 30 %

C. Men = 50 %, women = 50 %

D. Men = 25 %, women = 75 %

**Answer: A**



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**54.** The median of the first 12 prime numbers is

A. 12

B. 13

C. 14

D. 15

**Answer: D**



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**55.** Out of a total of 20 observations arranged in ascending order the 10<sup>th</sup> and 11<sup>th</sup> observations are 40 and 44. What is the median?

A. 40

B. 42

C. 44

D. 45

**Answer: B**



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**56.** Mode of the distribution is that value of the variate for which the \_\_\_\_\_ is \_\_\_\_\_

- A. frequency, maximum
- B. frequency, minimum
- C. frequency, arithmetic mean
- D. median, mode

**Answer: A**





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57. There are 50 numbers. Each number is subtracted from 53 and the mean of the number so obtained is found to be  $= 3.5$ . The mean of the given number is

A. 48.9

B. 49.5

C. 52.5

D. 56.5

**Answer: D**



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**58.** Class mark of class interval 60–70 is

A. 60

B. 70

C. 65

D. 72

**Answer: C**



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**59.** Class mark of a particular class is 6.5 and class size is 3,  
then class interval is:

A. 5-8



B.  $6.5 - 9.5$

C.  $3.5 - 6.5$

D.  $4.25$

**Answer: A**



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**60.** The mean of the factors of 24 is:

A.  $\frac{12}{5}$

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

C.  $\frac{15}{2}$

D.  $\frac{17}{5}$

**Answer: C**



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**61.** What is the arithmetic mean of the squares of first five natural numbers?

A. 9

B. 11

C. 13

D. 15

**Answer: B**



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62. If the mean of the observations:  $x, x + 3, x + 5, x + 7, x + 10$  is 9, the mean of the last three observations is

A.  $12\frac{1}{3}$

B.  $12\frac{2}{3}$

C.  $11\frac{1}{3}$

D.  $13\frac{2}{3}$

Answer: C



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63. If  $\bar{x}_1, \bar{x}_2, \bar{x}_3, \dots, \bar{x}_n$  are the means of  $n$  groups with  $n_1, n_2, \dots, n_n$  number of observations,

respectively, then the mean  $\bar{x}$  of all the groups taken together is given by

A.  $\sum_{i=1}^n n_i \bar{x}_i$

B.  $\frac{\sum_{i=1}^n n_i \bar{x}_i}{n^2}$

C.  $\frac{\sum_{i=1}^n n_i \bar{x}_i}{\sum_{i=1}^n n_i}$

D.  $\frac{\sum_{i=1}^n n_i \bar{x}_i}{2n}$

**Answer: C**



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**64.** The mean of 100 observation is 50. If one of the observation which was 50 is replaced by 150, the resulting mean will be

A. 50.5

B. 52

C. 51.5

D. 53

**Answer: A**



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**65.** The arithmetic mean of the cubes of first four natural numbers is

A. 24

B. 25

C. 28

D. 30

**Answer: B**



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**66.** The mean of 11 numbers is 35. If the mean of the first 6 numbers is 32 and that of the last 6 numbers is 37, then the sixth number is

A. 27

B. 29

C. 30

D. 32

**Answer: B**



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**67.** The mean of six numbers is 20. If one number is excluded, the mean is 15. Then the value of the excluded number is

A. 40

B. 42

C. 45

D. 48

**Answer: C**



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**68.** If  $m$  is the mid-point and  $L$  is the upper limit of a class in a continuous frequency distribution, then lower class limit of the class is

A.  $2m + L$

B.  $2m - L$

C.  $m - L$

D.  $m + 2L$

**Answer: B**



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**69.** The class marks of a frequency distribution are given as follows 15,20, 25,..... The class corresponding to the class mark 20 is

A. 12.5 – 17.5

B. 17.5 – 22.5

C. 18.5 – 21.5

D. 19.5– 20.5

**Answer: B**



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**70.** In the class interval 10-20, 20-30, the number 20 is included in

A. 10-20

B. 20-30

C. both the intervals

D. none of these intervals

**Answer: B**



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71. निम्नलिखित बारम्बारता बंटन का माध्य ज्ञात कीजिए :

$x$ : 10 12 20 25 35

$f$ : 3 10 15 7 5

A. 10

B. 12

C. 18

D. 20

**Answer: D**



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72. यदि निम्नलिखित आँकड़ों का माध्य 15 है, तो  $p$  का मान ज्ञात कीजिए ।

$x:$  5 10 15 20 25

$f:$  6  $p$  6 10 5

A. 4

B. 6

C. 8

D. 10

**Answer: C**



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**73.** Kavita obtained 16, 14, 18 and 20 marks (out of 25) in Maths in weekly tests in the month of Jan. 2000, then mean marks of Kavita is

A. 18

B. 16.5

C. 17

D. 17.5

**Answer: C**



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**74.** The class mark of the class 90-120 is

A. 90

B. 105

C. 11

D. 120

**Answer: B**



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**75.** The range of the data 25, 18, 20, 22, 16, 6, 17, 12, 30, 32, 10, 19, 8, 11, 20 is

A. 20

B. 16

C. 18

D. 26

**Answer: D**



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**76.** In a frequency distribution, the mid value of a class is 10 and the width of the class is 6. The lower limit of the class is

A. 8

B. 7

C. 10

D. 12

**Answer: B**



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77. The width of each of five continuous classes in a frequency distribution is 5 and the lower class limit of the lowest class is 10. The upper class limit of the highest class is

- A. 25
- B. 30
- C. 35
- D. 50

**Answer: C**



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