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## ECONOMICS

## BOOKS - VK GLOBAL PUBLICATION ECONOMICS <br> (HINGLISH)

## MEASURES OF CENTRAL TENDENCY - ARITHMETIC MEAN

## Illustration

1. Pocket allowance of 10 students is Rs. 15,20,30,22,25,18,40,50,55 and 65 .

Find out the average pocket allowance.

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2. Following is the pocket allowance of 10 students. Find out arithmetic mean using Short-cut Method.

## - Watch Video Solution

3. Following is the weekly wage earnings of 19 workers:

| Wages(Rs.) | 10 | 20 | 30 | 40 | 50 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Workers | 4 | 5 | 3 | 2 | 5 |

Calculate arithmetic mean using Direst Method,

## - Watch Video Solution

4. Following are the wages of 19 workers:

| Wages(Rs.) | 10 | 20 | 30 | 40 | 50 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Workers | 4 | 5 | 3 | 2 | 5 |

Calculate arithmetic mean, using Short-cut Method.

## - Watch Video Solution

5. Wage rate of 19 workers is given below:
Wages(Rs.) $\quad 10 \quad 20 \quad 30 \quad 40 \quad 50$
$\begin{array}{llllll}\text { Number of Workers } & 4 & 5 & 3 & 2 & 5\end{array}$

Calculate arithmetic mean, using 'Step-deviation Method.

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6. The following table shows marks in English secured by students of Class X in your school in their examination. Calculate mean marks using Direct Method.

| Marks | $0-10$ | $10-20$ | $20-30$ | $30-40$ | $40-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 20 | 24 | 40 | 36 | 20 |

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7. The following table shows marks secured by the students of a class in an examination in English:

| Marks | $0-10$ | $10-20$ | $20-30$ | $30-40$ | $40-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 20 | 24 | 40 | 36 | 20 |

Calculte mean marks using Short-cut Method.

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8. The following table shows marks obtained by the students of a class in their test in English:

| Marks | $0-10$ | $10-20$ | $20-30$ | $30-40$ | $40-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 20 | 24 | 40 | 36 | 20 |

Calculate arithmetic mean using Step-deviation method.

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9. Marks in Statistics of the students of Class XI are given below.

Find out arithmetic mean.
Marks Number of Students
Less than $10 \quad 5$
Less than 20
17
Less than 30
31
Less than 40
41
Less than 50
49

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10. The following table shows marks in economics of the students of a class. Calculate arithmetic mean.

Marks
Number of Students
More than $0 \quad 30$
More than 2 28
More than $4 \quad 24$
More than 6 18
More than $8 \quad 10$

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11. Following table gives marks in Statistics of the students of a class.

Find out mean marks.

| Mid-value | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Students | 5 | 7 | 9 | 10 | 8 | 6 | 3 | 2 |

## - Watch Video Solution

12. The following table shows monthly pocket expenses of the students of a class. Find out average pocket expenses.

| Pocket Expenses(Rs.) | $20-29$ | $30-39$ | $40-49$ | $50-59$ | $60-69$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 10 | 8 | 6 | 4 | 2 |

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13. Mean marks obtained by 100 students are estimated to be 40. Later on its is found that one value was read as 83 instead of 53 .

Find out the "corrected" mean.

## - Watch Video Solution

14. Suppose mean of a series of 5 items is 30 . Four values are, 10,15,30 and 35 respectively. Find the missing (5th) value of the series.

## - Watch Video Solution

15. Calculate weighted mean of the following data:
$\begin{array}{lllllll}\text { Marks(X) } & 81 & 76 & 74 & 58 & 70 & 73\end{array}$
Weight(W) $2 \begin{array}{lllllll} & 2 & 3 & 6 & 7 & 3 & 7\end{array}$

## - Watch Video Solution

16. 60 students of Section A of Class XI, obtained 40 mean marks in Statistics, 40 students of Section B obtained 35 mean marks in Statistics.

Find out mean marks in Statistics for Class XI as a whole.

## - Watch Video Solution

17. In the following frequency distribution, the frequency of the class interval (40-50) is not known. Find it, if the arithmetic mean of the distribution is 52 .

| Wages(Rs.) | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ | $60-$ : |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Workes | 5 | 3 | 4 | $?$ | 2 | 6 |

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18. If the arithmetic mean of the following series is 115.86 , find the missing value.

| Wages(Rs.) | 110 | 112 | 113 | 117 | $?$ | 125 | 128 | 130 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Workers | 25 | 17 | 13 | 15 | 14 | 8 | 6 | 2 |

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19. Follwing are the marks obtained by 8 students in Statistics.

Calculate the arithmetic mean.

| Marks | 15 | 18 | 16 | 45 | 32 | 40 | 30 | 28 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

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20. Following are the marks obtained by 25 students in economics.

Find out the mean marks by using Direct and Short-cut Method.

| Marks | 10 | 20 | 30 | 40 | 50 | 60 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Students | 5 | 2 | 3 | 8 | 4 | 3 |

- Watch Video Solution

21. Calculate mean salary by Step-deviation Method of the following data:

| Salary <br> Group | Number of <br> Employees |
| :---: | :---: |
| $60-75$ | 3 |
| $75-90$ | 4 |
| $90-105$ | 5 |
| $105-120$ | 5 |
| $120-135$ | 7 |
| $135-150$ | 6 |

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22. Calculate mean from the following data:

Marks

| $10-20$ | $10-30$ | $10-40$ | $10-50$ | $10-60$ | $10-$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4 | 16 | 56 | 97 | 124 | 18 |

Number of Students
4
16
56
124

## - Watch Video Solution

23. A train runs 25 miles at a speed of 30 mph , another 50 miles at a speed of 40 mph , then due to repairs of the track travels for 6 minutes at
a speed of 10 mph and finally covers the remaining distance of 24 miles at a speed of 24 mph . What is the average speed in miles per hour?

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24. If the average salary of a firm is Rs. 400 and the number of workers is 60 , find the total salary bill of the firm.

## - Watch Video Solution

25. The mean of 5 observations is 7 . Later on, it was found that two observations 4 and 8 were wrongly taken instead of 5 and 9 . Find the corrected mean.

## - Watch Video Solution

26. The mean monthly salary paid to all employees in a certain company was Rs. 600. The mean monthly salaries paid to male and female
employees were Rs. 620 and Rs. 520 respectively. Find the percentage of male to female employees in the company.

## - Watch Video Solution

27. Find the missing information in the following table:

|  | $A$ | $B$ | $C$ | Combined |
| :--- | :--- | :--- | :---: | :---: |
| Number $(\mathrm{N})$ | 10 | 8 | - | 24 |
| $\operatorname{Mean}(\bar{X})$ | 20 | - | 6 | 15 |

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28. In a class of 50 students 10 have failed and their average of marks is 2.5 . The total marks secured by the entire class were 281 . Find the average marks those who have passed.

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29. Following are the marks of 37 students:

Marks $\begin{array}{llllll}4 & 6 & 8 & 10 & 12 & 14\end{array}$
$\begin{array}{lllllll}\text { No. of Students } & 5 & 7 & 6 & 8 & 6 & 5\end{array}$
Calculate mean marks, using Short-cut Method.

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30. Find out the arithmetic mean by the Step-deviation Method of the following:

$$
\begin{array}{lccccccc}
\text { Class Interval } & 0-10 & 10-20 & 20-30 & 30-40 & 40-50 & 50-60 & 60 \\
\text { Frequency } & 12 & 16 & 32 & 52 & 42 & 32 &
\end{array}
$$

## Watch Video Solution

31. Calculate the mean marks from the following data:

| Marks | $20-25$ | $25-30$ | $30-35$ | $35-40$ | $40-45$ | $45-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| No. of Students | 10 | 12 | 8 | 20 | 11 | 4 |

## ( Watch Video Solution

32. Find out the arithmetic mean from the following data:

| Marks (less than) | 5 | 10 | 15 | 20 | 25 | 30 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 22310 | 23 | 30 | 54 | 69 | 80 |

## - Watch Video Solution

33. Calculate the weighted mean from the following data:
$\begin{array}{llllll}\text { Marks } & 60 & 75 & 63 & 59 & 55\end{array}$
$\begin{array}{llllll}\text { Weight } & 2 & 1 & 5 & 5 & 3\end{array}$

## - Watch Video Solution

34. Mean of 100 observations is found to be 40 . If at the time of computation two items are wrongly taken as 30 and 27 instead of 3 and 72 , find the correct mean.

## - Watch Video Solution

35. The mean monthly salary paid to 77 employees in a company was Rs. 78. The mean salary of 32 of then was Rs. 45 and of the other 25 was Rs. 82. What was the mean salary of the remaining ?

## - Watch Video Solution

36. The average marks of 39 students of a class is 50 . The marks obtained by 40th student are 39 more than the average marks of all the 40 student are 39 more than the average marks of all the 40 students. Find the mean marks of all the 40 students.

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37. Pocket allowance of 10 students is Rs. 15,20,30,22,25,18,40,50,55 and 65 .

Find out the average pocket allowance.

## - View Text Solution

38. Following is the pocket allowance of 10 students. Find out arithmetic mean using Short-cut Method.
```
Pocket Allowance(Rs.) }1
```


## - View Text Solution

39. Following is the weekly wage earnings of 19 workers:

| Wages(Rs.) | 10 | 20 | 30 | 40 | 50 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Workers | 4 | 5 | 3 | 2 | 5 |

Calculate arithmetic mean using Direst Method,

## - View Text Solution

40. Following are the wages of 19 workers:

Wages(Rs.) $\quad$| 10 | 20 | 30 | 40 | 50 |
| :--- | :--- | :--- | :--- | :--- |

Number of Workers $\begin{array}{lllllll}4 & 5 & 3 & 2 & 5\end{array}$
Calculate arithmetic mean, using Short-cut Method.
41. Wage rate of 19 workers is given below:

| Wages(Rs.) | 10 | 20 | 30 | 40 | 50 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Workers | 4 | 5 | 3 | 2 | 5 |

Calculate arithmetic mean, using 'Step-deviation Method.

## - View Text Solution

42. The following table shows marks in English secured by students of Class $X$ in your school in their examination. Calculate mean marks using Direct Method.

| Marks | $0-10$ | $10-20$ | $20-30$ | $30-40$ | $40-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 20 | 24 | 40 | 36 | 20 |

## - View Text Solution

43. The following table shows marks secured by the students of a class in an examination in English:

| Marks | $0-10$ | $10-20$ | $20-30$ | $30-40$ | $40-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 20 | 24 | 40 | 36 | 20 |

Calculte mean marks using Short-cut Method.
44. The following table shows marks obtained by the students of a class in their test in English:

| Marks | $0-10$ | $10-20$ | $20-30$ | $30-40$ | $40-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 20 | 24 | 40 | 36 | 20 |

Calculate arithmetic mean using Step-deviation method.

## - View Text Solution

45. Marks in Statistics of the students of Class XI are given below.

Find out arithmetic mean.
Marks Number of Students
Less than 10 5
Less than 20
17
Less than 30
31
Less than 40
41
Less than 50
49

## - View Text Solution

46. The following table shows marks in economics of the students of a class. Calculate arithmetic mean.

| Marks | Number of Students |
| :--- | :---: |
| More than 0 | 30 |
| More than 2 | 28 |
| More than 4 | 24 |
| More than 6 | 18 |
| More than 8 | 10 |

## - View Text Solution

47. Following table gives marks in Statistics of the students of a class.

Find out mean marks.

| Mid-value | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Students | 5 | 7 | 9 | 10 | 8 | 6 | 3 | 2 |

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48. The following table shows monthly pocket expenses of the students of a class. Find out average pocket expenses.

| Pocket Expenses(Rs.) | $20-29$ | $30-39$ | $40-49$ | $50-59$ | $60-69$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 10 | 8 | 6 | 4 | 2 |

49. Mean marks obtained by 100 students are estimated to be 40 . Later on its is found that one value was read as 83 instead of 53 .

Find out the "corrected" mean.

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50. Suppose mean of a series of 5 items is 30 . Four values are, 10,15,30 and 35 respectively. Find the missing (5th) value of the series.

## - Watch Video Solution

51. Calculate weighted mean of the following data:

| $\mathrm{Marks}(\mathrm{X})$ | 81 | 76 | 74 | 58 | 70 | 73 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathrm{Weight}(\mathrm{W})$ | 2 | 3 | 6 | 7 | 3 | 7 |

52. 60 students of Section A of Class XI, obtained 40 mean marks in Statistics, 40 students of Section B obtained 35 mean marks in Statistics. Find out mean marks in Statistics for Class XI as a whole.

## - Watch Video Solution

53. In the following frequency distribution, the frequency of the class interval (40-50) is not known. Find it, if the arithmetic mean of the distribution is 52 .

| Wages(Rs.) | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ | $60-$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Workes | 5 | 3 | 4 | $?$ | 2 | 6 |

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54. If the arithmetic mean of the following series is 115.86 , find the missing value.

Wages(Rs.)
$\begin{array}{llllllll}110 & 112 & 113 & 117 & ? & 125 & 128 & 130\end{array}$
$\begin{array}{lllllllll}\text { Number of Workers } & 25 & 17 & 13 & 15 & 14 & 8 & 6 & 2\end{array}$
55. Follwing are the marks obtained by 8 students in Statistics.

Calculate the arithmetic mean.

## $\begin{array}{lllllllll}\text { Marks } & 15 & 18 & 16 & 45 & 32 & 40 & 30 & 28\end{array}$

## - Watch Video Solution

56. Following are the marks obtained by 25 students in economics.

Find out the mean marks by using Direct and Short-cut Method.

| Marks | 10 | 20 | 30 | 40 | 50 | 60 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Students | 5 | 2 | 3 | 8 | 4 | 3 |

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57. Calculate mean salary by Step-deviation Method of the following data:

| Salary <br> Group | Number of <br> Employees |
| :---: | :---: |
| $60-75$ | 3 |
| $75-90$ | 4 |
| $90-105$ | 5 |
| $105-120$ | 5 |
| $120-135$ | 7 |
| $135-150$ | 6 |

## - Watch Video Solution

58. Calculate mean from the following data:

| Marks | $10-20$ | $10-30$ | $10-40$ | $10-50$ | $10-60$ | $10-$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 4 | 16 | 56 | 97 | 124 | 18 |

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59. A train runs 25 miles at a speed of 30 mph , another 50 miles at a speed of 40 mph , then due to repairs of the track travels for 6 minutes at
a speed of 10 mph and finally covers the remaining distance of 24 miles at a speed of 24 mph . What is the average speed in miles per hour?

## - Watch Video Solution

60. If the average salary of a firm is Rs. 400 and the number of workers is 60 , find the total salary bill of the firm.

## - Watch Video Solution

61. The mean of 5 observations is 7 . Later on, it was found that two observations 4 and 8 were wrongly taken instead of 5 and 9 . Find the corrected mean.

## - Watch Video Solution

62. The mean monthly salary paid to all employees in a certain company was Rs. 600. The mean monthly salaries paid to male and female
employees were Rs. 620 and Rs. 520 respectively. Find the percentage of male to female employees in the company.

## - Watch Video Solution

63. Find the missing information in the following table:

|  | $A$ | $B$ | $C$ | Combined |
| :--- | :--- | :--- | :---: | :---: |
| Number $(\mathrm{N})$ | 10 | 8 | - | 24 |
| $\operatorname{Mean}(\bar{X})$ | 20 | - | 6 | 15 |

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64. In a class of 50 students 10 have failed and their average of marks is 2.5 . The total marks secured by the entire class were 281 . Find the average marks those who have passed.

## - Watch Video Solution

65. Following are the marks of 37 students:

Marks $\begin{array}{llllll}4 & 6 & 8 & 10 & 12 & 14\end{array}$
No. of Students $\begin{array}{lllllll}5 & 7 & 6 & 8 & 6 & 5\end{array}$
Calculate mean marks, using Short-cut Method.

## - Watch Video Solution

66. Find out the arithmetic mean by the Step-deviation Method of the following:

$$
\begin{array}{lccccccc}
\text { Class Interval } & 0-10 & 10-20 & 20-30 & 30-40 & 40-50 & 50-60 & 60 \\
\text { Frequency } & 12 & 16 & 32 & 52 & 42 & 32 &
\end{array}
$$

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67. Calculate the mean marks from the following data:

| Marks | $20-25$ | $25-30$ | $30-35$ | $35-40$ | $40-45$ | $45-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| No. of Students | 10 | 12 | 8 | 20 | 11 | 4 |

## - Watch Video Solution

68. Find out the arithmetic mean from the following data:

| Marks (less than) | 5 | 10 | 15 | 20 | 25 | 30 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Students | 22310 | 23 | 30 | 54 | 69 | 80 |

## - Watch Video Solution

69. Calculate the weighted mean from the following data:

| Marks | 60 | 75 | 63 | 59 | 55 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Weight | 2 | 1 | 5 | 5 | 3 |

## - Watch Video Solution

70. Mean of 100 observations is found to be 40 . If at the time of computation two items are wrongly taken as 30 and 27 instead of 3 and 72, find the correct mean.

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71. The mean monthly salary paid to 77 employees in a company was Rs. 78. The mean salary of 32 of then was Rs. 45 and of the other 25 was Rs. 82. What was the mean salary of the remaining ?

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72. The average marks of 39 students of a class is 50 . The marks obtained by 40th student are 39 more than the average marks of all the 40 student are 39 more than the average marks of all the 40 students. Find the mean marks of all the 40 students.

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## Exercise A Mcqs

1. Which of the following is a type of mathematical average?
A. Median
B. Partition value
C. Mode
D. None of these

## Answer: D

## - View Text Solution

2. Formula for finding arithmetic mean is:
A. $\bar{X}=\sum X$
B. $\bar{X}=\frac{\sum X}{N}$
c. $\bar{X}=\sum X-N$
D. $\bar{X}=\frac{N}{\sum X}$

## Answer: B

3. Arithmetic mean of these items $5,7,9,15,20$ is:
A. 10
B. 10.2
C. 11.2
D. 12

## Answer: C

## - Watch Video Solution

4. Arithmetic mean of these items: $10,15, X, 20,30$, is 20 . Find out the missing item.
A. 10
B. 15
C. 5
D. 12

## Answer: D

## - Watch Video Solution

5. By which formula is combined arithmetic mean estimated?
A. $\bar{X}_{12} \frac{X_{1}+X_{2}+\ldots+X_{n}}{N_{1}+N_{2}}$
B. $\bar{X}_{12}=\frac{\bar{X}_{1} N_{1}+\bar{X}_{2} N_{2}}{N_{1}+N_{2}}$
C. $\bar{X}_{12}=\frac{\bar{X}_{1}+\bar{X}_{2}}{N_{1}+N_{2}}$
D. None of these

## Answer: B

## - View Text Solution

6. Arithmetic mean of a series is 15 and if 5 is added in all the items of this series, the new arithmetic mean will be:
A. 5
B. 20
C. 18
D. 10

## Answer: B

## - Watch Video Solution

7. What is the formula to find out arithmetic mean through Short-cut Method in individual series?
A. $\bar{X}=\frac{\sum X}{N}$
B. $\bar{X}=A+\frac{\sum d}{N}$
c. $\bar{X}=\frac{\sum X}{N}+A$
D. $\bar{X}=\frac{\sum f X}{\sum f}$

## Answer: B

8. Which of the following is not a measure of central tendency?
A. Mean
B. Mode
C. Standard deviation
D. Median

## Answer: C

## - View Text Solution

9. Which is not a method to find arithmetic mean?
A. Direct method
B. Short-cut method
C. Step-deviation method
D. Karl Pearson's method

## Answer: D

## - View Text Solution

10. Assumed mean is taken in which method?
A. Direct method
B. Step-deviation method
C. Karl Pearson's method
D. Spearman's method

## Answer: B

11. Sum of deviations of different values from arithmetic mean is always equal to:
A. zero
B. one
C. less than one
D. more then one

## Answer: A

## - View Text Solution

12. Which of the following is a type of mathematical average?
A. Median
B. Partition value
C. Mode
D. None of these

## D Watch Video Solution

13. Formula for finding arithmetic mean is:
A. $\bar{X}=\sum X$
B. $\bar{X}=\frac{\sum X}{N}$
c. $\bar{X}=\sum X-N$
D. $\bar{X}=\frac{N}{\sum X}$

## Answer: B

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14. Arithmetic mean of these items $5,7,9,15,20$ is:
A. 10
B. 10.2
C. 11.2
D. 12

## Answer: C

## - Watch Video Solution

15. Arithmetic mean of these items : $10,15, X, 20,30$, is 20 . Find out the missing item.
A. 10
B. 15
C. 5
D. 12

## Answer: D

16. By which formula is combined arithmetic mean estimated?
A. $\bar{X}_{12} \frac{X_{1}+X_{2}+\ldots+X_{n}}{N_{1}+N_{2}}$
B. $\bar{X}_{12}=\frac{\bar{X}_{1} N_{1}+\bar{X}_{2} N_{2}}{N_{1}+N_{2}}$
c. $\bar{X}_{12}=\frac{\bar{X}_{1}+\bar{X}_{2}}{N_{1}+N_{2}}$
D. None of these

## Answer: B

## Watch Video Solution

17. Arithmetic mean of a series is 15 and if 5 is added in all the items of this series, the new arithmetic mean will be:
A. 5
B. 20
C. 18
D. 10

## Answer: B

## - Watch Video Solution

18. What is the formula to find out arithmetic mean through Short-cut Method in individual series?
A. $\bar{X}=\frac{\sum X}{N}$
B. $\bar{X}=A+\frac{\sum d}{N}$
c. $\bar{X}=\frac{\sum X}{N}+A$
D. $\bar{X}=\frac{\sum f X}{\sum f}$

## Answer: B

## - Watch Video Solution

19. Which of the following is not a measure of central tendency?
A. Mean
B. Mode
C. Standard deviation
D. Median

## Answer: C

## - Watch Video Solution

20. Which is not a method to find arithmetic mean?
A. Direct method
B. Short-cut method
C. Step-deviation method
D. Karl Pearson's method

## Answer: D

## - Watch Video Solution

21. Assumed mean is taken in which method?
A. Direct method
B. Step-deviation method
C. Karl Pearson's method
D. Spearman's method

## Answer: B

## Watch Video Solution

22. Sum of deviations of different values from arithmetic mean is always equal to:
A. zero
B. one
C. less than one
D. more then one

## Answer: A

## - Watch Video Solution

## Exercise B Choose Appropriate Word And Fill In The Blank

1. In $\qquad$ arithmetic mean, all items of a series are given equal importance. (Simple/Weighted)

## D View Text Solution

2. ______ mean is the simplest measure of central tendencies. (Arithmetic/Geometric)

## - View Text Solution

3. ___ method is adopted when deviations from the assumed mean have some common factor. (Short-cut/Step-deviation)

## - View Text Solution

4. If each item of a series is increased by some constant, then the mean also $\qquad$ by same constant. (increases/decreases)

## - View Text Solution

5. The sum of squared deviations of the items from arithmetic mean is
$\qquad$ . (minimum/maximum)
6. Arithmetic mean makes comparison $\qquad$ . (easy/difficult)

## View Text Solution

7. Arithmetic mean is not a suitable measure in case of $\qquad$ values. (absolute/percentage)

## - View Text Solution

8. In $\qquad$ arithmetic mean, all items of a series are given equal importance. (Simple/Weighted)

## - Watch Video Solution

9. ___ mean is the simplest measure of central tendencies.
(Arithmetic/Geometric)

## - Watch Video Solution

10. $\qquad$ method is adopted when deviations from the assumed mean have some common factor. (Short-cut/Step-deviation)

## - Watch Video Solution

11. If each item of a series is increased by some constant, then the mean also $\qquad$ by same constant. (increases/decreases)

## - Watch Video Solution

12. The sum of squared deviations of the items from arithmetic mean is
$\qquad$ . (minimum/maximum)

## - Watch Video Solution

13. Arithmetic mean makes comparison $\qquad$ . (easy/difficult)
14. Arithmetic mean is not a suitable measure in case of $\qquad$ values. (absolute/percentage)

## - Watch Video Solution

## Exercise C State Whether The Following Statements Are True Or False

1. Central tendency refers to a central value of a statistical series.

## - View Text Solution

2. Averages help in the formulation of economic policies.

## - View Text Solution

3. The mean of weighted items is called weighted average.

## - View Text Solution

4. If a given number is subtracted from all the items in a series, then the arithmetic mean of that series will increase by the same specific value.

## - View Text Solution

5. Arithmetic mean is shown by the following formula:
$\bar{X}=X_{1}+X_{2}+\hat{a} €_{1}^{\prime}+X_{n}-N=\sum X-N$

- View Text Solution

6. Central tendency refers to a central value of a statistical series.

## - View Text Solution

7. Averages help in the formulation of economic policies.
8. The mean of weighted items is called weighted average.

## - View Text Solution

Exercise D Concept Based Objective Questions

1. What do you mean by average value?

## - View Text Solution

2. Define arithmetic mean.

## - View Text Solution

3. Define weighted arithmetic mean.
4. What are the types of arithmetic mean?

## - View Text Solution

5. Name any two mathematical averages.

## - View Text Solution

6. Give formula of calculating arithmetic mean of a continuous series using direct method.

## - View Text Solution

7. Give formula of weighted average.
8. State one notable property of arithmetic mean.

## - View Text Solution

9. What do you mean by average value?

## - Watch Video Solution

10. Define Arithmetic mean.

## - Watch Video Solution

11. Define weighted arithmetic mean.

## - Watch Video Solution

12. What are the types of arithmetic mean?

## - Watch Video Solution

13. Name any two mathematical averages.

## - Watch Video Solution

14. Give formula of calculating arithmetic mean of a continuous series using direct method.

## - Watch Video Solution

15. Give formula of weighted average.

## - Watch Video Solution

16. State one notable property of arithmetic mean.

## - Watch Video Solution

## 2 Short Answer Type Questions

1. Define and explain arithmetic mean.

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2. Define and explain weighted arithted arithmetic mean.

## - View Text Solution

3. Show that the sum of deviations of the values of the variable from their arithmetic mean is equal to zero.
4. Give the four objective of statistical average.

## - View Text Solution

5. State four merits of an ideal measure of central tendency.

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6. State four merits of arithmetic mean.

## - View Text Solution

7. State four demerits of arithmetic mean.
8. What do you mean by statistical or central tandency of a series? State its functions.

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9. Explain the kinds of statistical averages.

## - Watch Video Solution

10. Define and explain arithmetic mean.

## - Watch Video Solution

11. Define and explain weighted arithted arithmetic mean.

## - Watch Video Solution

12. Discuss the various properties of arithmetic mean.

## - Watch Video Solution

13. The arithmetic mean is described as the central of gravity of the distribution of values of the variable . Explain.

## - Watch Video Solution

14. Show that the sum of deviations of the values of the variable from their arithmetic mean is equal to zero.

## - Watch Video Solution

15. Give the four objective of statistical average.

## - Watch Video Solution

16. State four merits of an ideal measure of central tendency.

## - Watch Video Solution

17. State four merits of arithmetic mean.

## - Watch Video Solution

18. State four demerits of arithmetic mean.

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## 3 Long Answer Type Questions

1. What is statistical average? What desirable properties should an average possess?
2. Discuss the various methods of measuring arithmetic mean and point out its merits and demerits.

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3. Why is the arithmetic mean the most commonly used measure of central tendency?

## - View Text Solution

4. Explain the step-deviation method of calculating arithmetic mean, taking an imaginary set of data.

## - Watch Video Solution

5. Discuss the various methods of measuring arithmetic mean and point out its merits and demerits.
6. Why is the arithmetic mean the most commonly used measure of central tendency?

## - Watch Video Solution

## 4 Essential Practicals

1. Eight workers earn the following income:
$30,36,34,40,42,46,54,62$
Find out arithmetic mean.

## - Watch Video Solution

2. Pocket allowance of 5 students respectively are:

125, 75, 150, 175, 200

Find out arithmetic mean.

## - Watch Video Solution

3. Following is the height of 10 students:

| Students | $A$ | $B$ | $C$ | $D$ | $E$ | $F$ | $G$ | $H$ | $I$ | $J$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Height(cm) | 155 | 153 | 168 | 160 | 162 | 166 | 164 | 180 | 157 | 165 |

Calculate arithmetic mean using Direct and Short-cut Methods.

## - Watch Video Solution

4. Weight of 15 persons is as follows:
$\begin{array}{llllllllllllllll}\text { Weight(kg) } & 20 & 28 & 34 & 39 & 42 & 50 & 53 & 54 & 59 & 64 & 72 & 74 & 74 & 78 & 7!\end{array}$
Find out mean weight, using Direct Method as well as Short-cut Method.

## - Watch Video Solution

5. Calculate average of the following discrete series. Use Short-cut

Method by taking 25 as assmed average.

## Watch Video Solution

6. Marks secured by 42 students in economics are:

| Marks | 15 | 20 | 22 | 23 | 27 | 35 | 18 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Students | 8 | 4 | 7 | 3 | 8 | 7 | 5 |

Find average marks.

## Watch Video Solution

7. Average age of the people of a counry is shown in the following table:

| Age (Years) | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| People ('000) | 30 | 32 | 15 | 12 | 9 |

Find out mean age by Direct Method.

## - Watch Video Solution

8. Calculate the arithmetic mean of the following frequency distribution by Direct Method:
$\begin{array}{lllll}\text { Class Interval } & 10-20-40 & 40-70 & 70-120 & 120-200\end{array}$ $\begin{array}{lllllll}\text { Frequency } & 4 & 10 & 26 & 8 & 2\end{array}$

## Watch Video Solution

9. Calculate arithmetic mean from the following data by Short-cut

Method:

| Class Interval | $20-25$ | $25-30$ | $30-35$ | $35-40$ | $40-45$ | $45-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency | 10 | 12 | 8 | 20 | 11 | 4 |

## - Watch Video Solution

10. Find out arithmetic mean from the following distribution by Short-cut

Method: | Items | $10-8$ | $8-6$ | $6-4$ | $4-2$ | $2-0$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency | 10 | 8 | 6 | 4 | 2 |

## - Watch Video Solution

11. Sachin made the following runs in different matches:

Runs $\quad 5-15 \quad 15-25 \quad 25-35 \quad 35-45 \quad 45-55$
$\begin{array}{llllll}\text { Frequency } & 10 & 12 & 17 & 19 & 22\end{array}$
Calculate the average mean of the runs by Step-deviation Method.

## - Watch Video Solution

12. Calculate arithmetic mean of the following frequency distribution:

| Class | less than 10 | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency | 5 | 12 | 18 | 22 | 6 | 4 |

## - Watch Video Solution

13. Mean marks obtained by a student in his five subjects are 15. In English he secures 8 marks, in Economics 12, in Mathematics 18, and in Commerce
14. Find out the marks he secured in Statistics.

## - Watch Video Solution

14. Mean value of the weekly income of 40 families is 265 . But in the calculation, income of one family was read as 150 instead of 115 . Find the "Corrected" mean.
15. Average pocket allowance of 6 students is Rs. 45 . Of these, pocket allowance of 5 students is $20,30,22,24$ and 32 respectively. What is the pocket allowance of the sixth student?

## - Watch Video Solution

16. The following table shows wages of the workers. Calculate the average wage of the workers.

| Wages(Rs.) | $10-19$ | $20-29$ | $30-39$ | $40-49$ | $50-59$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Workers | 8 | 9 | 12 | 11 | 6 |

## - Watch Video Solution

17. Ten players of the Australian team made an average an average of 63 runs and ten players of the Indian team made an average of 77 runs.

Calculate the average run made by both the teams.
18. Average income of 50 families is Rs. 3,000 . Of these average income of 12 families is Rs. 1,800 . Find out the average income of the remaining families.

## - Watch Video Solution

19. In the following frequency distribution, if the arithmetic mean is 45.6 ,
find out missing frequency.

| Wages(Rs.) | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ | $60-$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Workers | 5 | 6 | 7 | $X$ | 4 | 3 |

## - Watch Video Solution

20. Calculate the weighted mean of the following data:

| Items | 96 | 102 | 104 | 124 | 148 | 164 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Weight | 5 | 6 | 3 | 7 | 12 | 9 |

## - Watch Video Solution

21. A student obtained 60 marks in English, 75 in Hindi, 63 in Mathematics, 59 in Economics and 55 in Statistics. Calculate weighted mean of the marks if weights are respectively $2,1,5,5$ and 3.

## ( Watch Video Solution

22. A housewife uses 10 kg of Wheat, 20 kg of Fuel, 5 kg of Sugar, and 2 kg of oil. Prices (per kg) of these items are Rs. 1.50, 50 paise, Rs. 2.80 and Rs.

10 respectively. Taking quantities used as weights find out the weighted arithmetic average of the prices.

## - Watch Video Solution

23. Calculate weighted mean of the following data by using Direct and Short-cut Methods:

| Items | 81 | 76 | 74 | 58 | 70 | 73 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Weight $\begin{array}{lllllll}2 & 3 & 6 & 7 & 3 & 7\end{array}$
24. Eight workers earn the following income:
$30,36,34,40,42,46,54,62$
Find out arithmetic mean.

## - Watch Video Solution

25. Pocket allowance of 5 students respectively are:

125, 75, 150, 175, 200
Find out arithmetic mean.

## - Watch Video Solution

26. Following is the height of 10 students:

| Students | $A$ | $B$ | $C$ | $D$ | $E$ | $F$ | $G$ | $H$ | $I$ | $J$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Height(cm) | 155 | 153 | 168 | 160 | 162 | 166 | 164 | 180 | 157 | 165 |
| Calculate arithmetic mean using Direct and Short-cut Methods. |  |  |  |  |  |  |  |  |  |  |

27. Weight of 15 persons is as follows:

| Weight(kg) | 20 | 28 | 34 | 39 | 42 | 50 | 53 | 54 | 59 | 64 | 72 | 74 | 74 | 78 | $7!$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Find out mean weight, using Direct Method as well as Short-cut Method.

## - Watch Video Solution

28. Calculate average of the following discrete series. Use Short-cut Method by taking 25 as assmed average.

| Size | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Frequency (f) | 2 | 4 | 5 | 3 | 2 | 7 | 1 | 4 | 5 | 7 |

## - Watch Video Solution

29. Marks secured by 42 students in economics are:

| Marks | 15 | 20 | 22 | 23 | 27 | 35 | 18 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of Students | 8 | 4 | 7 | 3 | 8 | 7 | 5 |

Find average marks.

## - Watch Video Solution

30. Average age of the people of a counry is shown in the following table:

Age (Years) $\quad 10-20 \quad 20-30 \quad 30-40 \quad 40-50 \quad 50-60$ People ('000) $\begin{array}{llllll} & 30 & 32 & 15 & 12 & 9\end{array}$

Find out mean age by Direct Method.

## - Watch Video Solution

31. Calculate the arithmetic mean of the following frequency distribution by Direct Method:

| Class Interval | $10-20$ | $20-40$ | $40-70$ | $70-120$ | $120-200$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Frequency | 4 | 10 | 26 | 8 | 2 |

## - Watch Video Solution

32. Calculate arithmetic mean from the following data by Short-cut Method:

| Class Interval | $20-25$ | $25-30$ | $30-35$ | $35-40$ | $40-45$ | $45-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency | 10 | 12 | 8 | 20 | 11 | 4 |

## - Watch Video Solution

33. Find out arithmetic mean from the following distribution by Short-cut
Method:
Items $\quad 10-8 \quad 8-6 \quad 6-4 \quad 4-2 \quad 2-0$
Frequency
10
8
6
4
2

## Watch Video Solution

34. Sachin made the following runs in different matches:

| Runs | $5-15$ | $15-25$ | $25-35$ | $35-45$ | $45-55$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Frequency | 10 | 12 | 17 | 19 | 22 |

Calculate the average mean of the runs by Step-deviation Method.

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35. Calculate arithmetic mean of the following frequency distribution:

| Class | less than 10 | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency | 5 | 12 | 18 | 22 | 6 | 4 |

36. Mean marks obtained by a student in his five subjects are 15 . In English he secures 8 marks, in Economics 12, in Mathematics 18, and in Commerce 9. Find out the marks he secured in Statistics.

## - Watch Video Solution

37. Mean value of the weekly income of 40 families is 265 . But in the calculation, income of one family was read as 150 instead of 115 . Find the "Corrected" mean.

## - Watch Video Solution

38. Average pocket allowance of 6 students is Rs. 45. Of these, pocket allowance of 5 students is $20,30,22,24$ and 32 respectively. What is the pocket allowance of the sixth student?

## - Watch Video Solution

39. The following table shows wages of the workers. Calculate the average wage of the workers.

| Wages(Rs.) | $10-19$ | $20-29$ | $30-39$ | $40-49$ | $50-59$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Number of Workers | 8 | 9 | 12 | 11 | 6 |

## - Watch Video Solution

40. Ten players of the Australian team made an average an average of 60 runs and ten players of the Indian team made an average of 70 runs.

Calculate the average run made by both the teams.

## - Watch Video Solution

41. Average income of 50 families is Rs. 3,000 . Of these average income of 12 families is Rs. 1,800 . Find out the average income of the remaining families.

## - Watch Video Solution

42. In the following frequency distribution, if the arithmetic mean is 45.6, find out missing frequency.

| Wages(Rs.) | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ | $60-$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Workers | 5 | 6 | 7 | $X$ | 4 | 3 |

## - Watch Video Solution

43. Calculate the weighted mean of the following data:

| Items | 96 | 102 | 104 | 124 | 148 | 164 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Weight | 5 | 6 | 3 | 7 | 12 | 9 |

## - Watch Video Solution

44. A student obtained 60 marks in English, 75 in Hindi, 63 in Mathematics, 59 in Economics and 55 in Statistics. Calculate weighted mean of the marks if weights are respectively $2,1,5,5$ and 3 .

## - Watch Video Solution

45. A housewife uses 10 kg of Wheat, 20 kg of Fuel, 5 kg of Sugar, and 2 kg of oil. Prices (per kg) of these items are Rs. $1.50,50$ paise, Rs. 2.80 and Rs. 10 respectively. Taking quantities used as weights find out the weighted arithmetic average of the prices.

## - Watch Video Solution

46. Calculate weighted mean of the following data by using Direct and Short-cut Methods:

| Items | 81 | 76 | 74 | 58 | 70 | 73 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Weight | 2 | 3 | 6 | 7 | 3 | 7 |

## D Watch Video Solution

## 5 Ncert Questions With Hints To Answers

1. Which average would be suitable in the following cases?
(i) Average size of readymede garments.
(ii) Average intelligence of students in a class.
(iii) Average wages in an industrial concern.
(iv) Average wages in an industrial concern.
(v) When quantities of the variable are in ratios.
(vi) When quantities of the variable are in ratios.
(vii) In case of open-ended frequency distribution.

## D View Text Solution

2. Indicate the most appropriate alternative from the multiple choices provided against each question.

The most suitable average for qualitative measurement is:
A. arithmetic mean
B. median
C. mode
D. $\mathrm{N} / \mathrm{A}$

## Answer: c

3. Indicate the most appropriate alternative from the multiple choices provided against each question.

Which average is affected most by the presence of extreme items?
A. median
B. Mode
C. arithmetic mean
D. geometric mean

## Answer: c

## - View Text Solution

4. Indicate the most appropriate alternative from the multiple choices provided against each question.

The algebraic sum of deviation of a set of $n$ values from A.M. is
A. n
B. 0
C. 1
D. None of these

## Answer: b

## - View Text Solution

5. The following table gives the daily income of ten workers in a factory.

Find the arithmetic mean.

| Workers | $A$ | $B$ | $C$ | $D$ | $E$ | $F$ | $G$ | $H$ | $I$ | $J$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Daily Income(in Rs.) | 120 | 150 | 180 | 200 | 250 | 300 | 220 | 350 | 370 | 260 |

## - Watch Video Solution

6. Following information pertains to the daily income of 150 families.

Calculate the arithmetic mean.Income (in Rs.)
More than 75 ..... 150
More than 85 ..... 140
More than 95 ..... 115
More than 105 ..... 95
More than 115 ..... 70
More than 125 ..... 60
More than 135 ..... 40
More than 145 ..... 25Number of Families

- Watch Video Solution

7. Which average would be suitable in the following cases?
(i) Average size of readymede garments.
(ii) Average intelligence of students in a class.
(iii) Average wages in an industrial concern.
(iv) Average wages in an industrial concern.
(v) When quantities of the variable are in ratios.
(vi) When quantities of the variable are in ratios.
(vii) In case of open-ended frequency distribution.
8. Indicate the most appropriate alternative from the multiple choices provided against each question.

The most suitable average for qualitative measurement is:
A. arithmetic mean
B. median
C. mode
D. $\mathrm{N} / \mathrm{A}$

## Answer: c

## - View Text Solution

9. Which average is affected most by the presence of extreme items?
A. median
B. Mode
C. arithmetic mean
D. geometric mean

## Answer: c

## - Watch Video Solution

10. The algebraic sum of deviation of a set of $n$ values from A.M. is
A. $n$
B. 0
C. 1
D. None of these

Answer: b

## - Watch Video Solution

11. The following table gives the daily income of ten workers in a factory.

Find the arithmetic mean.

| Workers | $A$ | $B$ | $C$ | $D$ | $E$ | $F$ | $G$ | $H$ | $I$ | $J$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Daily Income(in Rs.) | 120 | 150 | 180 | 200 | 250 | 300 | 220 | 350 | 370 | 260 |

## - Watch Video Solution

12. Following information pertains to the daily income of 150 families.

Calculate the arithmetic mean.
Income (in Rs.) Number of Families
More than 75150
More than 85140
More than 95115
More than 10595
More than $115 \quad 70$
More than $125 \quad 60$
More than 13540
More than $145 \quad 25$

## - Watch Video Solution

