



MATHS

BOOKS - PEARSON IIT JEE FOUNDATION

STATISTICS

Example

1. Given below are the ages of 40 people in a colony:

33	8	7	28	30	25	6	50	24	44
56	32	27	21	17	62	58	16	14	19
24	31	27	5	12	46	15	42	67	34
4	21	10	40	20	50	48	63	9	21

Taking class intervals 1-10, 11-20, 21-30, 31-40, 41-50, 51-60 and 61-70, we

construct a frequency distribution table for th above data.



2. Represent the following frequency distribution by bar graph:

Value of Variable3691215Frequency610438

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3. Construct a histogram for the frequency distribution below:

Class Interval	10-20	20 - 30	30 - 40	40 - 50	50-60
Frequency	6	3	8	4	7

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4. Construct a frequency polygon for the following data:

Class Interval	5-10	11 - 16	17-22	23-28	29-34	Total
Frequency	7	13	8	12	10	50

5. Draw a frequency curve for the data given below:							
Class Interval	0 - 10	10-20	20 - 30	30 - 40	40-50	50-60	60
Frequency	3	2	4	6	9	7	10

6. For the give	en distri	bution, d	raw the l	ess than	and grea	ater than
cumulative frequ	iency cui	rves				
cumulative frequ Class Interval	uency cui $0-10$	rves. $10-20$	20 - 30	30 - 40	40 - 50	50 - 60

7. Find the mean of the first seven natural even numbers.

8. The population of 50 villages in a state is given below:

Population Number of villages

6000	8
7000	10
9000	12
10000	5
11000	7
13000	6
15000	2
Total	50

Find the mean population of the villages of the state.

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9. Find the median of the following data:

1, 12, 5, 3, 7, 13, 9, 23, 17, 11 and 6



10. Find the median of the data 11, 5, 3, 13, 16, 9, 18, 10.



14. Given below is the data showing heights of 50 students in a class. Find

its median.

${ m Height}({ m in\ cm})$	162	164	166	167	168	170	173	175	177	180
Number of Students	6	4	5	12	8	3	7	2	2	1

15. Find the median of the following data:

Class Interval0 - 1010 - 2020 - 3030 - 4040 - 50f68547

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16. The following information gives the marks scored by the students of a

class	in	an	exan	nination.	Find	the	mod	le	of	the	data.
Marks				1-20	21-40	41 -	60	61 -	- 80	81 -	100
Numbe	er of S	Stude	nts	3	18	23		37		19	

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17. Find the range of 1, 3, 8, 6, 2, 11, 10, 15 and 13.

18. Find Q_1	for the data	23, 7, 11, 9, 15	i, 12, 20 and 18.
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20. The ages of 10 employees in an organization are 26, 23, 27, 33, 39, 43,

41, 36, 42, 25. Find Q_1

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21. Find Q_3 for the data 8, 13, 18, 9, 20, 11.

22. Find semi-inter quartile range of the following data:

X 3 6 7 9 10 11 13 f 2 9 13 17 10 14 15

Vatch Video Solution23. The following table shows the distribution of the percentage of marks
of a group of students:
Percentage of Marks 30 - 40 40 - 50 50 - 60 60 - 70 70 - 80 80 - 11
Number of Students 4 11 3 7 5 2**View Text Solution**

24. Estimate the mode of the following data from the histogram.

Class Interval	0 - 10	10 - 20	20 - 30	30 - 40	40-50	50-60	60
Frequency	8	10	15	16	20	13	14
Watch Vic	leo Solut	ion					

25. Find the mean deviation of the following from median 13, 18, 15, 10, 17,

19 amd 21.



Very Short Answer Type Questions

1. If 1-10, 11-20, 21-30, 31-40,, are the classes of a frequency distribution,

then the upper boundary of the class 31-40 is _____.

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2. If 1-5, 6-10, 11-15,, are classes of a frequency distribution, then the

mid-value of class 11-15 is _____.

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3. In a class, seven students got 90 marks each, the frequency of the

observation 90 is _____.



4. If the lower boundary of a class is 35 and length of the class is 5, then

the upper boundary is _____.



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5. Range of the scores 27, 35, 47, 36, 25 and x is 23, wher $x < 25$, then x is
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6. In a histogram, width of the rectangle represents of the class and
length of the rectangle represents of the class.
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7. If the median of the scores 1, 2, x, 4 and 5 (where $1 < 2 < x < 4 < 5$)
is 3, then the mean of the scores is
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8. In a less than cumulative frequency distribution, frequency and cumulative frequency of a class are 10 and 20 respectively, then the cumulative frequency of the previous class is _____.



11. The coefficient of range of the scores 1, 2, 3, 4 and 5 is _____.

12. If sun	n of	the	20	deviations	from	the	mean	is	100,	then	the	mean
deviation	is _	<u> </u>										

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13. If lower and upper quartiles of the data are x and y respectively, then quartile deviation is
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14. If mode and median of the certain scores are 2 and 2, then mean is
·
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20. Find the mean of the following:

 $10\frac{1}{4}, 9, 4\frac{3}{4}, 8, 2\frac{2}{3}, 12 \text{and} 2\frac{1}{3}$

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21. Find the median of the following data:

2.0025, 2.0205, -2.06, -2.206 and -2.006



22. Find the median of the following data:

23, 92, 43, 34, 54, 48, 82, 14, 62 and 46



23. If the strengths of 10 classes in a school are given as 28, 42, 25, 30, 45,

22, 25, 34, 26 and 36, then find the median strength.

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24. the mean of 8 observations was found to be 20. Later it was detected that one of the observations was misred as 62. What is the correct observation, if the correct mean is 15.5?

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25. Find the coefficient of range of the scores 25, 30, 22, 34, 50, 56 and 67.

26. If the median of 33, 28, 20, 25, 34, x is 29, find the maximum possible value of x.



27. If the mode of scores 3, 4, 3, 5, 4, 6, 6, x is 4, find the value of x.

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28. If the heights of five students in a class are 132 cm, 158 cm, 150 cm, 145

cm, and 155 cm, then find their mean height.

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29. Find the median of the following data:

$$3\frac{3}{7}, 3\frac{5}{8}, 3\frac{1}{2}, 3\frac{1}{4}, 3\frac{7}{9}$$
 and $3\frac{7}{11}$

30. Following are the runs scored by 11 members of a cricket team in a test innings. Calculate the quartile deviation of the data.

20, 22, 30, 32, 39, 41, 42, 60, 62, 65 and 80

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Short Answer Type Questions

I. If the mean weight of 10 students is 25 kg and the mean weight of another 10 students is 35 kg, then the mean weight of 20 students is
.......

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2. Given below are the number of students in 30 class rooms in a school.Construct a frequency distribution table for this data with a class interval

of 4.											
25	30	24	18	20	24	32	35	22	20		
22	32	40	28	30	25	26	29	34	15		
38	28	19	16	15	20	24	30	26	18		
Vatch Video Solution											

3. The average marks of 50 students of a class is 76. If the average marks of all boys is 70 and that of all girls is 80 in that class, then find the number of boys in the class.

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4. The mean of 30 observations is 25. If two observations 30 and 60 are misread as 20 and 40, then find the correct mean.

5. The mean expenditure of a person from Monday to Wednesday is Rs.250, and the mean expenditure from Wednesday to Friday is Rs.400. If he spend Rs.300 on Wednesday, find the mean expenditure of the person from Monday to Friday.

A. Rs. 340

B. Rs. 330

C. Rs. 350

D. Rs. 360

Answer: B

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6. The sum of deviations of n observations about 25 is 25 and sum of deviations of the same n observations about 35 is -25. Find the mean of the observations.

7. If the sum of mode and mean of certain observations is 129 and the median of the observations is 63, then find mode and mean.

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8. The height (in cms) of 20 childre of class 9 is given, find the mean.

Height(in cm) Number of children

120	2
121	4
122	3
123	2
124	5
125	4

9. Find the median of the following distribution:

x	f	x	f
10	2	30	4
20	3	40	5
50	6	80	3
60	5	90	3
70	4	100	1

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10. Find the quartile deviation of the following data:

x	f	x	f
2	4	13	2
3	6	17	4
5	8	19	6
7	9	23	6
11	10		

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11. Calculate the mean deviation for the following data about median.

15, 20, 16, 13, 10, 11, 18

12. Draw a histogram for the following data:

Class Interval	f
0-5	2
5-10	10
10-15	8
15-20	6
20-25	4

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13. Draw the frequency polygon for the following data by drawing a

histogram:

Class Interval f

0-5	10
5-10	20
10-15	15
15-20	30
20-25	32
25 - 30	44

14. If the mean of the following data is 26, then find the missing frequency

х.

Class Interval f

 $\begin{array}{cccc} 0-10 & & 4 \\ 10-20 & & X \\ 20-30 & & 9 \\ 30-40 & & 5 \\ 40-50 & & 6 \end{array}$

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Essay Type Question

1. Find the AM of the following data by short-cut method.

Class Interval	f
1-5	5
6-10	10
11-15	15
16-20	10
21-25	5

2. Find the quartile deviation for the following grouped data.

Class Interval	f
0-4	1
5-9	3
10 - 14	2
15-19	4
20-24	5
25-29	3
30-34	2
35-39	4
40-44	3
45-49	3

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3. Find the mode of the following distribution given below.

Class Interval f

0 - 19	12
20 - 39	20
40-59	23
60-79	22
80 - 99	13

4. Calculate the mean deviation about mean for the following data.

Class Interval	f
10-14	5
15-19	6
20-24	3
25-29	10
30-34	4
35-39	15
40-44	8
45-49	10

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5. Draw the frequency curve for the following data.

Class Interval	f
2-5	12
5-8	8
8-11	8
11-14	6
14-17	10
17-20	9



1. If the mean of first n natural numbers is $\frac{5n}{9}$, then n = (a) 5 (b) 4 (c) 9 (d) 10 A. 5 B. 4 C. 9 D. None of these Answer: C

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2. Mean of a certain number of observations is \bar{x} . If each observation is divided by $m(m \neq 0)$ and increased by n, then the mean of new observation is

A. mx + y

B.
$$\frac{mx + y}{x}$$

C. $\frac{m + xy}{x}$
D. $m + xy$

Answer: C

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3. If the difference of mode and median of a data is 24, then the difference of median and mean is (a) 12 (b) 24 (c) 8 (d) 36

A. 12

B. 24

C. 8

D. 36

Answer: A

4. The mode of observations 2x + 3, 3x - 2, 4x + 3, x - 1, 3x - 1, 5x + 2 (x is a positive integer) can be

A. 3 B. 5 C. 7 D. 9

Answer: C

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5. The median of 21 observations is 18. If two observations 15 and 24 are included to the observations, then the median of the new series is

A. 15

B. 18

C. 24

D. 16

Answer: B

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6. If the quartile deviation of a set of observations is 10 and the third quartile is 35, then the first quartile is

A. 24 B. 30

C. 17

D. 15

Answer: D

7. The lower class limit of inclusive type class interval 10-20.

A. 10.5

B. 20

C. 20.5

D. 10

Answer: D

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8. The semi-inter quartile range of the observations 9, 12, 14, 6, 23, 36, 20,

7, 42 and 32 is

A. 12.75

B. 12.5

C. 11.5

D. 9.5

Answer: C



9. Find the mode of the following discrete series.

x	f	x	f
1	5	6	8
3	7	12	6
5	3	15	5
	A. 3		
	B. 12		
	C 0		
	ς, δ		
	D6		
	D. U		

Answer: D

10. The mean deviation of $a^3 + b^3 \text{and} a^3 - b^3$ (where a and b > 0) is_____. A. a^3 B. b^3 C. $2a^3$ D. $2b^3$

Answer: B

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11. If the arithmetic mean of the observations $x_1, x_2, x_3, \dots, x_n$ is 1, then the arithmetic mean of $\frac{x_1}{k}, \frac{x_2}{k}, \frac{x_3}{k}, \dots, \frac{x_n}{k}$ (k > 0) is

A. greater than 1.

B. less than 1.

C. equal to 1.

D. None of these

Answer: D



12. Range of 14, 12, 17, 18, 16 and x is 20. find x (x > 0).

A. 2

B. 28

C. 32

D. Cannot be determined

Answer: C



13. The mean of a set of observation is a. If each observation is multiplied by b and each product is decreased by c, then the mean of new set of observations is _____.

A.
$$\frac{a}{b} + c$$

B. $ab - c$
C. $\frac{a}{b} - c$

D. ab + c

Answer: B

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14. The mean deviation of first 8 composite numbers is _____.

A. 2.9375

B. 4.83

C. 5.315

D. 3.5625

Answer: A



15. Find the mode of the following discrete series.

x	f	x	f
1	5	5	12
2	4	6	3
3	6	7	9
4	8	8	10
	A. 4		
	B. 8		
	C. 5		
	D. 7		

Answer: C
16. The the highest score of certain data exceeds its lowest score by 16 and coefficient of range is $\frac{1}{3}$. Find the sum of highest score and the lowest score.

A. 36

B. 48

C. 24

D. 18

Answer: B

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17. Find the mean deviation (approximately) about the mode for the following ungrouped data: 20, 25, 30, 18, 15, 40.

A. 6.71

B. 4.52

C. 7.61

D. 5.33

Answer: C

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18. The mean of first n odd natural numbers is $\displaystyle rac{n^2}{81}$, then $n=$ (a) 9 (b) 81
(c) 27 (d) 18
A. 9
B. 81
C. 27
D. None of these
Answort P

D Watch Video Solution

19. The arithmetic of 12 observations is 15. If two observations 20 and 25 are removed then the arithmetic mean of remaining observations is

A. 14.5

B. 13.5

C. 12.5

D. 13

Answer: C

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20. The arithmetic mean and mode of a data are 24 and 12 respectively, then its median is (a) 25 (b) 18 (c) 20 (d) 22

A. 20

B. 18

C. 20

D. 22

Answer: C



21. The inter-quartile range of the observations 3, 5, 9, 11, 13, 18, 23, 25, 32
and 39 is
A. 24
B. 17
C. 31
D. 8

Answer: B

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22. Find the mean deviation from the mode for the following ungrouped

data: 2.5, 6.5, 7.3, 12.3, 16.2.

A. 4.34

B. 5.57

C. 2.33

D. 6.72

Answer: B

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23. If the mean of the following frequency distribution is 5, then b =

 $\{:(x_{(i)} " :",3,5,7,4),(f_{(i)}" :",2,a,5,b):\}$

A. 10

B. 6

C. 8

D. None of these

Answer: B



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25. If the mean of x + 2, 2x + 3, 3x + 4 and 4x + 5 is x + 2, then find the value of x.

A. 0

B. 1

C. - 1

 $\mathsf{D.}\,2$

Answer: C

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26. The range of 15, 14, x, 25, 30, 35 is 23. Find the least possible value of x.

A. 14

 $\mathsf{B}.\,12$

C. 37

Answer: B



27. Find the median of the following data.

Class Interval	f
0-10	12
10-20	13
20-30	25
30-40	20
40-50	10
A. 25	
B. 23	
C. 24	
D. 26	

Answer: D

28. In the following table, pass percentage of three schools from the year 2001 to the year 2006 are given. Which school students' performance is more consistent?

	2001	2002	2003	2004	2005	2006
School X	80	89	79	83	84	65
School Y	92	94	76	75	80	63
School Z	93	97	67	63	70	85

A. X

B. Y

C. Z

D. X and Y

Answer: A

D View Text Solution

29. The Median of the following discrete series is

A. 7		
B. 8		
C. 9		
D. 6		

Answer: A



30. Which of the following does not change for the observations 23, 50,

27, 2x, 48, 59, 72, 89, 5x, 100, 120, when x lies between 15 and 20?

A. Arithmetic mean

B. Range

C. Median

D. Quartile deviation

Answer: B

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Level 2
1. If the ratio of mean and median of a certain data is 2:3, then find the ratio of its mode and mean.
A. 4 : 3
B.7:6
C. 7 : 8
D. 5 : 2
Answer: D Watch Video Solution
2. If the mean of the following distribution is 13, then p = x_i : 5 10 12 17 16 20 f_i : 9 3 P 8 7 5

A. 6	
B. 7	
C. 10	
D. 4	

Answer: B



3. If the ratio of mode and median of a certain data is 6:5, then find the ratio of its mean and median.

A. 8 : 9

B.9:10

C. 9 : 7

D. 8 : 11

Answer: B

4. If the arithmetic mean of the following distribution is 8.2, then a =

D. None of these

Answer: B

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5. The median of the series 8, 12, 15, 7, x, 19, 22 lies in the interval

A. [12, 15]

B. [7, 15]

C. [15, 17]

D. [9, 12]

Answer: A

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6. The mode of the following distribution is

{("Class interval",f),(" "1-5,4),(" "6-10,7),(" "11-15,10),(" "16-20,8),(" "21-25,6):}

A. 14.5

B. 16.5

C. 10.5

D. 13.5

Answer: D

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7. The mean of the following data is

{("Class interval",f),(" "10-15,5),(" "15-20,7),(" "20-25,3),(" "25-30,4),(" "30-35,8):}

A. 22

B. 23.05

C. 24.05

D. 27.05

Answer: B

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8. The median of the following frequency distribution is

 $\begin{array}{ccc} \text{Class interval} & f \\ 0 - 10 & 5 \\ 10 - 20 & 8 \\ 20 - 30 & 7 \\ 30 - 40 & 10 \\ 40 - 50 & 20 \end{array}$

A. 35

B. 30

C. 40

D. 45

Answer: A

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9. Find the quartile deviation of the following discrete series.

x 7 5 4 8 12 10 f 2 4 6 10 9 7 A. 6.5 B. 4.5 C. 3.5

D. 2.5

Answer: D

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Find the number of students who scored less than or equal to 50% if marks.

A. 35

10.

B. 15

C. 20

D. 30

Answer: B

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11.

Find the number of students who scored greater than or equal to 90% of

marks.

A. 47

B.45

C. 5

D. 10

Answer: C

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12. In a class of 15 students, on an average, each student got 12 books. If exactly two students received same number of books, and remaining student books average be an integer then which of the following could be the number of books received by each of the two students who received same number of books? 1.) 11 2.) 15 3.) 20 4.) 25

A. 11

B. 15

C. 20

D. 25

Answer: D

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13. Find the quartile deviation of the following discrete series.

A. 4	
B. 3	
C. 3.5	
D. 4.5	

Answer: C

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	Weight(in kg)	Number of students
	20	8
14.	22	4
	24	3
	25	7
	30	5

Find the mean deviation (approximately) about the median for the above

data.

A. 2.5

B. 1.5

C. 3

D. 0.5

Answer: D

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15. Find the mean deviation (approximately) about the mean for the

following.

Class interval	f
0-5	3
5-0	4
10-15	8
15-20	10
20-25	5
A. 5 B. 4	
C. 6	

D. 3

Answer: A

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16. If the average mark of 15 students is 60 and the average mark of another 10 students is 70, then find the average mark of 25 students. The following are the steps involved in solving the above problem. Arrange them in sequential order.

(A) Average marks of 25 students $=\frac{1600}{25}=64$ (B) The total marks of 15 students $=15 \times 60 = 900$ The total marks of 10 students $=10 \times 70 = 700$ (C) The total marks of 25 students = 900 + 700 = 1600

A. BCA

B. BAC

C. CBA

D. CAB

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17. In a class of 25 boys and 20 girls, the mean weight of the boys is 40 kg and the mean weight of the girls is 35 kg. Find the mean weight of the class.

The following are the steps involved in solving the above problem. Arrange them in sequential order.

(A) The total weight of 25 boys = 25 imes 40 = 1000 kg

The total weight of 20 girls $\,=20 imes35=700$ kg

- (B) The mean weight of the class = $\frac{1700}{45} = 37\frac{7}{9}$ kg
- (C) The total weight of 45 students = 1000 kg + 700 kg = 1700 kg

A. ABC

B. ACB

C. BCA

D. CBA

Answer: B



18. If p < q < 2p, the median and mean of p, q and 2p are 36 and 31 respectively, then find the mean of p and q.

A. 21.5

B. 23

C. 27.5

D. 24

Answer: C



19. If x < y < 2x, the median and the mean of x, y and 2x are 27 and 33

respectively, then find the mean of x and y.

A. 23.5

B. 24

C. 23

D. 25.5

Answer: D

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20. The mean of a set of 12 observations is 10 and another set of 8 observations is 12. The mean of combined set is _____.

A. 11

B. 10.8

C. 11.2

D. 0.6

Answer: B

Level 3

1. A Class of 40 students is divided into four groups named as A, B, C and D. Group-wise percentage of marks scored by them are given below in the

table.

By using the coefficient of range find which of the group has shown good

performance.

A. A

B. B

C. C

Answer: B



2. Life (in hour) of 10 bulbs from each of four different companies A, B, C

and D are given below in the table.

A	B	C	D
120	700	950	530
1600	502	330	650
280	1430	1200	720
420	625	500	550
800	780	445	748
770	335	1260	570
270	224	375	635
455	1124	1130	804
150	473	185	500

By using the coefficient of range find which company has shown the best

consistency in its quality?

A. A

B. B

C. C

D. D

Answer: D

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3. If the mode of the observations 5, 4, 4, 3, 5, x, 3, 4, 3, 5, 4, 3 and 5 is 3, then find the median of the observations.

A. 3 B. 4 C. 5

 $\mathsf{D}.\,3.5$

Answer: B

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4. In a colony, the average age of the boys is 14 years and the average age of the girls is 17 years. If the average age of the children in the colony is 15 years, find the ratio of number of boys to that of girls.

A. 1:2

B. 2:1

C.2:3

 $\mathsf{D}.\,3\!:\!2$

Answer: A

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5. Find the median of the following data.

{:("Class Interval",f),(" "0-4,3)(" "4-8,6)(" "8-12,6),(" "12-16,6),(" "16-20,8):}

A. 13

B. 12

C. 11

D. 10

Answer: C

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6. In a class of 20 students, 10 boys brought 11 books each and 6 girls brought 13 books each. Remaining students brought atleast on book each and no two students brought the same number of books. If the average number of books brought in the class is a positive integer, then what could be the total number of books brought by the remaining students?

A. 12

B. 16

C. 14

D. 8

Answer: A

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7. The mean of a set of 20 observations is 8 an another set of 30 observations is 10. The mean of combined set is _____.

 $\mathsf{A}.\,9.2$

 $B.\,10.8$

 $C.\,11.2$

 $D.\,9.8$

Answer: A

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8. Find the approximate value of mean deviation about the mode of the

following data.

{:("Class Interval",f),(" "0-10,4),(" "10-20,6),(" "20-30,3),(" "30-40,9),(" "40-50,5):}

A. 11.5

B. 12.5

C. 13.5

D. 14.5

Answer: B

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9. The mean of the following distribution is 4. Find the value of q.

 $\mathsf{D.}\,4$

Answer: B

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10. If the ratio of mean and median of a certain data is 5 : 7, then find the ratio of its mode and mean.

A. 2 : 5 B. 11 : 5

C. 6 : 5

D. 2 : 3

Answer: B



11. Find the mode of the following discrete series.

x	1	2	3	4	5	6	7	8	9
f	3	8	15	1	9	12	14	5	7

A. 7		
B. 5		
C. 2		
D. 3		

Answer: D



12. Find the median of the following data.

{:(x,12,15,18,21,24),(f,4,7,2,3,4):}

A. 12

B. 16

C. 18

D. 15

Answer: D

13. Find the mean deviation about the median for the following data.

Answer: D

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14. Find the mode for the following data.

Class Interval	f
0-9	2
10-19	4
20-29	7
30-39	5
40-49	3
A. 30	
B. 25.5	
C. 32	
D. 33	

Answer: B

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15. Find the quartile deviation of the following discrete series.

x	8	10	13	16	19	22
f	4	7	8	3	5	4

A. 3.5
B.6

 $\mathsf{C.}\,5$

D. 4.5

Answer: D

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16. Find the arithmetic mean of the observations x + 5, x + 6, x + 10, x + 11, x + 14, x + 20 (where x is any real number).

A. x + 11

 $\mathsf{B.}\,x+5$

 $\mathsf{C.}\,x+13$

 $\mathsf{D}.\,x+7$

Answer: A



17. Find the mode of the following discrete series.

A. 7

B. 5

 $\mathsf{C.}\,2$

D. 3

Answer: D

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18. Find the mean of the following continuous distribution.

{("Class Interval",f),(" "0-10,8),(" "10-20,4),(" "20-30,6),(" "30-40,3),(" "40-50,4):}

B. 21.4

C. 21.8

D. 22.2

Answer: B

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19. Which of the following is not changed for the observations 31, 48, 50, 60, 25, 8, 3x, 26, 32? (where x lies between 10 and 15).

A. Arithmetic mean

B. Range

C. Median

D. Quartile deviation

Answer: B

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