MATHS

BOOKS - PSEB

STATISTICS

Exercise

1. A survey was conducted by a groupofstudentsas a part of their enviromentawareness programme, in which

they collected the following data regarding the number of plants in 20 houses in a locality. Find the mean number of plants per house.

Number of plants	0 – 2	2 – 4	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14
Number of houses	1	2	1	5	6	2	3

Which method did you use for finding the mean, and why?

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2. Consider the following distribution of daily wages of 50 workers of a factory.

Daily wages (in ₹)	100 –120	120– 140	140 – 160	160 – 180	180 – 200
Number of workers	12	14	8	6	10

Find the

mean daily wages of the workers of the factory by using an appropriate method.

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3. The following distribution shows the daily pocket allowance of children of a locality. The mean pocket allowance is rs18. Find the missing frequency f.

Daily pocket allowance (in ₹)	11– 13	13 – 15	15 – 17	17 – 19	19 – 21	21 – 23	23 – 25
Number of children	7	6	9	13	f	5	4

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4. Thirty women were examined in.a hospital by a doctor and the number of heart beats per minute were recorded and summarised as follows. Find the meanheart beats per minute for these women, choosing a suitable method.

Number of heart beats per minute	65 – 68	68 – 71	71 – 74	74 – 77	77 – 80	80 – 83	83 – 86
Number of women	2	4	3	8	7	4	2

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5. The table below shows the daily expenditure on food of 25 households in a locality.

Daily expenditure (in ₹)	100–150	150–200	200–250	250–300	300–350
Number of households	4	5	12	2	2

Find the mean daily expenditure on food by a suitable method.

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6. A class teacher has the following absentee record of 40 students of a class for the whole term. Find the mean number of days a student was absent.

Number of days	0 – 6	6 – 10	10 – 14	14 – 20	20 – 28	28 – 38	38 – 40
Number of students	11	10	7	4	4	3	1

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7. The following table gives the literacy rate (in percentage) of 35 cities. Find the mean literacy rate.

Literacy rate (in %)	45 – 55	55 – 65	65 – 75	75– 85	85 – 95
Number of cities	3	10	11	8	3

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8. The following data gives the information on the observed lifetimes (in hours) of 225 electrical components :

Life times (in hours)	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	100 – 120
Frequency	10	35	52	61	38	29

Determine the modal lifetimes of the components

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9. The following data gives the distribution of total monthly household expenditure of 200 families of a village. Find the modal monthly expenditure of the families. Also, find the

mean monthly expenditure :

Expenditure (in ₹)	Number of families
1000 – 1500	24
1500 – 2000	40
2000 – 2500	33
2500 – 3000	28
3000 – 3500	30
3500 – 4000	22
4000 – 4500	16
4500 – 5000	7

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10. The following distribution gives the state-wise teacher-student ratio in higher secondary schools of India. Find the mode and mean of

this data.Interpret, the two measures.

Number of students per teacher	Number of States/U.T.
15 – 20	3
20 – 25	8
25 – 30	9
30 – 35	10
35 – 40	3
40 – 45	0
45 – 50	0
50 – 55	2

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11. The given distribution shows the number of runs scored by some top batsmen of the world in one-day international cricket matches

Runs scored	Number of batsmen
3000 – 4000	4
4000 – 5000	18
5000 – 6000	9
6000 – 7000	7
7000 – 8000	6
8000 – 9000	3
9000 – 10000	1
10000 – 11000	1

Find the mode of the data.

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12. A student noted the number of cars passing through a spot on a road for 100 periods each of 3 minutes and summarised it in the table given below. Find the mode of the

data :

Number of cars	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency	7	14	13	12	20	11	15	8

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13. The following frequency distribution gives the monthly consumption of electricity of 68 consumers of a locality. Find the median, mean and mode of the data and compare them.

Monthly consumption (in units)	Number of consumers
65 –85	4
85 – 105	5
105 – 125	13
125 – 145	20
145 – 165	14
165 – 185	8
185 –205	4

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14. If the median of the distribution given below is 28.5, find the values of x and y.

Class interval	Frequency
0 – 10	5
10 – 20	x
20 – 30	20
30 – 40	15
40 – 50	y
50 – 60	5
Total	60

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15. A life insurance agent found the following data for distribution of ages of 100 policy holders. Calculate the median age, if policies are given only to persons having age 18 years onwards but less than 60 year.

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16. The lengths of 40 leaves of a plant are measured correct to the nearest millimetre,

and the data obtained is represented in the following table . Find the median length of the leaves. (Hint : The data needs to be converted to continuous classes for finding the median, since the formula assumes continuous classes, The classes then change to 117.5 -126.5, 126.5-135.5,....171.5 - 180.5.)

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17. The following table gives the distribution of the life time of 400 neon lamps :

Life time (in hours)	Number of lamps (f_i)	Cumulative frequency
1500 – 2000	14	14 = 14
2000 – 2500	56	(14 + 56) = 70
2500 – 3000	60	(70 + 60) = 130
3000 – 3500	86	(130 + 86) = 216
3500 – 4000	74	(216 + 74) = 290
4000 – 4500	62	(290 + 62) = 352
4500 – 5000	48	(352 + 48) = 400
Total	$\Sigma f_i = n = 400$	

Find the median life time of a lamp.

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18. 100 surnames were randomly picked up from a local telephone directory and the frequency distribution of the number of lettersin the English alphabetsin the surnames was obtained as follows :

Number of letters	1 – 4	4 – 7	7 – 10	10 – 13	13 – 16	16 – 19
Number of surnames	6	30	40	16	4	4

Determines the median number of letters in the surnames. Find the mean number of letters in the surnames? Aso, find the modal size of the surnames.

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19. The distribution below gives the weights of 30 students of a class. Find the median weight

of the students.

Weight (in kg)	40 – 45	45 – 50	50 – 55	55 – 60	60 – 65	65 – 70	70 – 75
Number of students	2	3	8	6	6	3	2

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20. During the medial check up of 35 students of a class, their weights were recorded as follows:

Weight (in kg)	Number of students
Less than 38	0
Less than 40	3
Less than 42	5
Less than 44	9
Less than 46	14
Less than 48	28
Less than 50	32
Less than 52	35

Draw a less than type ogive for the given data.

Hence obtain the median weight from the graph and verify the result by using the formula.

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Example

1. The table below gives the percentage distribution of female teachers in the primary schools of rural areas of various states and union territories (U.T.) of India. Find the mean

percentage of female teachers by all the three methods discussed in this section.

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2. The distribution below shows the number of wickets taken by bowlers in one-day cricket matches. Find the mean number of wickets by choosing a suitable method, What does the mean signify?

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3. The wickets taken by a bowler in 10 cricket matches are as follows, 2 6 4 5 0 2 1 3 2 3 Find the mode of the data.

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4. A survey conducted on 20 households in a locality by a group of students resulted in the following frequency table for the number of family members in a household :

Family Size	1– 3	3 – 5	5 – 7	7 – 9	9 – 11
Number of families	7	8	2	2	1

Find the mode of this data.

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5. A survey regarding the heigths (in cm) of 51 girls of Class X of a school was conducted and the following data was obtained :

Height (in cm)	Number of girls
Less than 140	4
Less tthan 145	11
Less than 150	29
Less than 155	40
Less than 160	46
Less than 165	51

Find the median height.

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6. The median of the following data is 525. Find the values of x and y, if the total frequency is 100.

Class interval	Frequency
0 – 100	2
100 – 200	5
200 – 300	x
300 – 400	12
400 – 500	17
500 – 600	20
600 – 700	y
700 – 800	9
800 – 900	7
900 – 1000	4

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7. The annual profits earned by 30 shops of a shopping complex in a locality gives rise to following distribution.

Profit (in lakhs in ₹)	Number of shops (frequency)
More than or equal to 5	30
More than or equal to 10	28
More than or equal to 15	16
More than or equal to 20	14
More than or equal to 25	10
More than or equal to 30	7
More than or equal to 35	3

Draw both ogves for the data above. Hence obtain the median profit.

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