MATHS

BOOKS - SWAN PUBLICATION

STATISTICS

Exercise 14 1

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.

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

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. In a retail market, fruit vendors were selling mangoes kept in packing boxes. These boxes

contained varying number of mangoes. The following was the distribution of mangoes according to the number of boxes.

Number of mangoes	50-52	53-55	56-58	59-61	62-64
Number of boxes	15	110	135	"115	25

Find the mean number of mangoes kept in a packing box which method of finding the mean did you choose ?

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6. 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.

7. To find out the concentration of SO_2 in the air (in parts pe million, i.e., ppm) the data was collected for 30 localities in a certain city and is presented below :

Concentration of SO_2 (in ppm)	Frequency
0·00-0·04	4
0·04-0·08	9
0·08-0·12	9
0·12-0·16	2
0·16-0·20	4
0·20-0·24	2

Find the mean concentration of SO_2 in the air.

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8. 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

9. 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

Exercise 14 2

1. The following table shows the ages of the partients admitted in a hospital during a year :

Age (in years)	5-15	15-25	25-35	35-45	45-55	55-65
Number of patients	6	11	21	23	14	5

Find the mode and the mean of the data given above. Compare and interpret the two measures of central tendency.

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2. 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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3. 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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4. 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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5. 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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6. 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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Exercise 14 3

1. 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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2. 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

3. 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.

4. 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 :

Length (in mm)	Number of leaves
118-126	3
127-135	5
136-144	9
145-153	12
154-162	5
163-171	4
172-180.	2

Find the median length of the leaves.

5. 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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6. 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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Exercise 14 4

1. 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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