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Solutions

Class 7

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Chapter - 22

Data handling - 1

(Collection and organisation of Data)

Exercise 22.1Q.1. Define the following terms.

(i) observations (ii) data

(iii) Frequency of an observation (iv) Frequency distribution

Solution: (i) observations: An observation is a fact or figure we collect about a given variable. generally we take numerical facts.

(ii) Data: Data are facts that are collected, analyzed and summarised for presentation and Interpretation.

(iii) Frequency of an observation: The number of times an observation occurs in a data are called frequency of that observation.

(iv) Frequency distribution: If a data is associated with its frequency. It is known as frequency distribution.

Q2 Final marks in mathematics of 30 students are as follows:

53, 61, 48, 60, 78, 68, 55, 100, 64, 90
 75, 88, 77, 37, 84, 58, 60, 48, 62, 56
 44, 58, 52, 64, 98, 59, 70, 39, 50, 60.

- (i) Arrange these marks in the ascending order. 30 to 39 one group, 40 to 49 second group, etc.
- (ii) What is the highest score?
- (iii) What is the lowest score?
- (iv) What is the range?
- (v) If 40 is the pass mark how many have failed?
- (vi) How many have scored 75 or more?
- (vii) Which observation between 50 and 60 have not actually appeared?
- (viii) How many have scored less than 50?

Solution: (i) Ascending order

(30-39): 37, 39

(40-49): 44, 48, 48

(50-59): 50, 52, 53, 55, 56, 58, 58, 59

(60-69): 60, 60, 60, 61, 62, 64, 67, 68

(70-79): 70, 75, 77, 78

(80-89): 84, 88

(90-99): 90, 98

(100-109): 100.

- (i) highest score: 100
- (ii) lowest score: 37
- (iv) Range = highest observation - lowest observation
 $= 100 - 37 = 63$
- (v) If 40 is pass mark, then only 2 students have failed.
- (vi) 8 students
- (vi) 51, 54 and 57 have not appeared.
- (vii) 5 students scored less than 50.

Q3 The weights of new born babies (in kg) in a hospital on a particular day are as follows:

2.3, 2.2, 2.1, 2.7, 2.6, 3.0, 2.5, 2.9, 2.8, 3.1, 2.5, 2.8, 2.7
2.9, 2.4

- (i) Rearrange the weights in descending order.
- (ii) Determine the highest weight.
- (iii) Determine the lowest weight.
- (iv) Determine the range.
- (v) How many babies weigh below 2.5 kg?
- (vi) How many babies were born on that day?
- (vii) How many babies weigh more than 2.8?
- (viii) How many babies weigh 2.8 kg?

Solution : (i) Descending order:

3.1, 3.0, 2.9, 2.9, 2.8, 2.8, 2.7, 2.7, 2.6, 2.5, 2.5
2.4, 2.3, 2.2, 2.1

(ii) Highest weight = 3.1 kg

(iii) Lowest weight = 2.1 kg

(iv) Range = highest weight - lowest weight
= $3.1 - 2.1 = 1.0$ kg

(v) 4 babies below 2.5 kg

(vi) Total 15 babies born on that day.

(vii) 4 babies weigh more than 2.8 kg.

(viii) 2 babies weigh 2.8 kg.

Q.4 Following data gives the number of children in 40 families:

1, 2, 6, 5, 1, 5, 1, 3, 2, 6, 2, 3, 4, 2, 0, 0, 4, 4, 3, 2
2, 0, 0, 1, 2, 2, 4, 3, 2, 1, 0, 5, 1, 2, 4, 3, 4, 1, 6, 2

Represent it in the form of a frequency distribution

Solution

Solution :

No. of children	Frequency
0	5
1	7
2	11
3	5
4	6
5	3
6	3

Q.5 Prepare a frequency table of the following scores obtained by 50 students in a test.

42 51 21 42 37 37 42 49 38 52
 7 33 17 44 39 7 14 27 39 42
 42 62 37 39 67 51 53 53 59 41
 29 38 27 31 54 19 53 51 22 61
 42 39 59 47 33 34 16 37 57 43

Solution

Marks	No. of St.	Marks	No. of St.	Marks	No. of Students
7	2	33	2	49	1
14	1	34	1	51	3
16	1	37	4	52	1
17	1	38	2	53	3
19	1	39	4	54	1
21	1	41	1	57	1
22	1	42	6	59	2
27	2	43	1	61	1
29	1	44	1	62	1
31	1	47	1	67	1

Q.6 A die was thrown 25 times and following scores were obtained.

1, 5, 2, 4, 3, 6, 1, 4, 2, 5, 1, 6, 2,
6, 3, 5, 4, 1, 3, 2, 3, 6, 1, 5, 2

Prepare a frequency table of the scores.

Solution:

Score	Number of times
1	5
2	5
3	4
4	3
5	4
6	4

Q.7 In a study of number of accidents per day, the observations for 30 days were obtained as follows:

6 3 5 6 4 3 2 5 4 2
4 2 1 2 2 0 5 4 6 1
6 0 5 3 6 1 5 5 2 6

Prepare a frequency distribution table.

Solution:

No. of Accidents	0	1	2	3	4	5	6
No. of days	2	3	6	3	4	6	6

Q8 Prepare a frequency table of the following ages (in years) of 30 students of class VIII in your school.

13, 14, 13, 12, 14, 13, 14, 15, 13, 14, 13, 14, 16, 12, 14
13, 14, 15, 16, 13, 14, 13, 12, 17, 13, 12, 13, 13, 13, 14

Solution:

Ages (In years)	12	13	14	15	16	17
No. of students	4	12	9	2	2	1

Q.9 Following figures relate the weekly wages (In Rs.) of 15 workers in a factory:

300, 250, 200, 250, 200, 150, 350, 200, 250, 200, 150, 300, 150
200, 250

Prepare a frequency table.

- (i) What is the range in wages (In Rs.)?
- (ii) How many workers are getting Rs. 350?
- (iii) How many workers are getting the minimum wages?

Solution:

Wages (In Rs.)	150	200	250	300	350
Number of workers	3	5	4	2	1

(i) Range = Rs. 350 - Rs. 150 = Rs. 200

(ii) 1 worker is getting Rs. 350.

(iii) 3 workers are getting the minimum wages
i.e. Rs. 150.

Q10 Construct a frequency distribution table for the following marks obtained by 25 students in a history test in class VI of a school.

9, 17, 12, 20, 9, 18, 25, 17, 19, 9, 12, 9, 12, 18, 17,
19, 20, 25, 9, 12, 17, 19, 19, 20, 9

(i) What is the range of marks?

(ii) What is highest mark?

(iii) Which mark is occurring more frequently.

Solution:- Frequency distribution table is

Marks	Frequency
9	6
12	4
17	4
18	2
19	4
20	3
25	2

(i) Range of marks = $25 - 9 = 16$

(ii) The highest mark is 25

(iii) 9 is occurring more frequently.

Q.11 In a mathematics test following marks were obtained by 40 students of class VI. Arrange these marks in a table using, tally marks.

8	1	3	7	6	5	5	4	4	2
4	9	5	3	7	1	6	5	2	7
7	3	8	4	2	8	9	5	8	6
7	4	5	6	9	6	4	4	6	5

(i) Find how many students obtained marks equal or more than 7.

(ii) How many students obtained marks below 4?

Solution

Marks	Tally marks	frequency
1		2
2		3
3		3
4		7
5		6
6		7
7		5
8		4
9		1

(i) 10 Students obtained marks equal or more than 7.

(ii) 8 Students.

Q12 Following is the choice of Sweets of 30 students of class VI:

Ladoo, Barfi, Ladoo, Jalebi, Ladoo, Rasgulla, Jalebi, Ladoo, Barfi, Rasgulla, Ladoo, Jalebi, Jalebi, Rasgulla, Ladoo, Rasgulla, Jalebi, Ladoo, Rasgulla, Ladoo, Rasgulla, Jalebi, Ladoo, Rasgulla, Ladoo, Ladoo, Barfi, Rasgulla, Rasgulla, Ladoo.

(i) Arrange the names of sweets in a table using tally marks

(ii) Which sweet is preferred by most of the Students.

Solution:

Sweet	Tally marks	Frequency
Ladoo		12
Barfi		3
Jalebi	*	6
Rasgulla		9

(ii) Ladoo is preferred by most of students.