MATHEMATICS

Chapter 5: Data Handling

Important Questions

Multiple Choice Questions-

Question 1.Numbers 1 to 10 are written on ten separates slips (one number on one slip), kept in a box and mixed well. One slip is chosen from the box without looking in to it. What is the probability of getting a number greater than 6?

(a) 1

(b) 0

(c) $\frac{1}{2}$

(d) $\frac{1}{10}$

Question 2. There are 2 Red, 3 Blue and 5 Black balls in a bag. A ball is drawn from the bag without looking in to the bag. What is the probability of getting a non-blue ball?

(a) $\frac{7}{10}$

(b) $\frac{3}{5}$

(c) $\frac{2}{5}$

(d) None of these

Question 3. A coin is tossed. Which of the following is the probability of getting a head or tail?

(a) 0

(b) 1

(c) $\frac{1}{2}$

(d) None of these

Question 4. There are 2 Red, 3 Blue and 5 Black balls in a bag. A ball is drawn from the bag without looking in to the bag. What is the probability of getting a non-red ball?

(a) $\frac{3}{5}$

(b) $\frac{4}{5}$

(c) $\frac{2}{5}$

(d) None of these

Question 5. The central total angle in a pie chart is

(a) 180°

(b) 210°

(c) 360°

(d) None of these

Question 6. There are 2 Red, 3 Blue and 5 Black balls in a bag. A ball is drawn from the bag without looking in to the bag. What is the probability of getting a blue ball?

(a) $\frac{3}{5}$

(b) $\frac{2}{5}$

(c) $\frac{3}{10}$

(d) None of these

Question 7. 18 out of 36 people love reading, so reading in the pie chart will be represented by

(a) 36 degree sector

(b) quarter sector

(c) semi circular sector

(d) None of these

Question 8. When a die is thrown, total number of possible outcomes is _____.

(a) 6

(b) 36

(c) 2

(d) None of these

Question 9. The pie-chart is divided into

(a) circles

(b) squares

(c) sectors

(d) segments

Question 10. The class mark of 95-100 is

(a) 95.5

(b) 97.5

(c) 95

(d) 100

Very Short Questions:

1. In the class interval 5-10, find the

(i) lower limit

(ii) upper limit

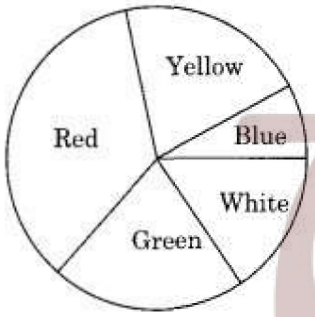
(iii) class mark

(iv) class size

2. A group of 20 students recorded their heights (in cm). The data received were as given below. What is the range?

150, 120, 112, 160, 155, 151, 158, 142, 148, 149, 161, 165, 140, 157, 156, 146, 148, 153, 138, 135

3. In the given pie chart, which colour is most popular? Which colour is the least popular?



4. A die is thrown once. Find the probability of getting a number greater than 4.

5. A class consists of 21 boys and 9 girls. A student is to be selected for social work. Find the probability that

(i) a girl is selected

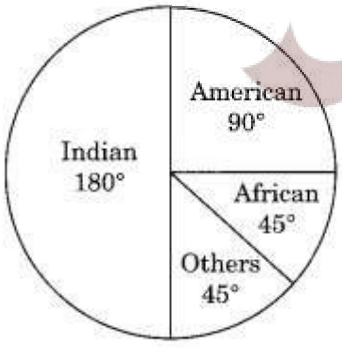
(ii) a boy is selected

Short Questions :

1. The following pie chart depicts the percentage of students, nationwide. What is the percentage of

(i) Indian students

(ii) African students?



2. Fill in the blanks:

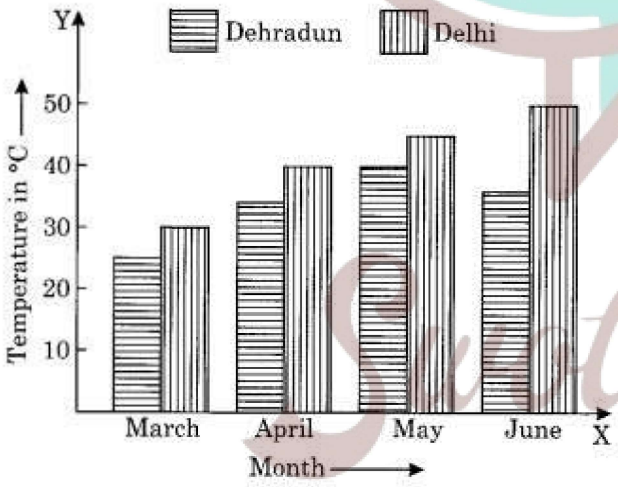
Weights in kg	Class-mark
10–15	—
15–20	—
20–25	—
25–30	—
30–35	—
35–40	—

3. Construct a frequency table for the following marks obtained by 50 students using equal Intervals taking 16-24 (24 not included) as one of the class-intervals.

52, 16, 18, 20, 42, 48, 39, 38, 54, 58, 47, 37, 25, 16, 42, 49, 36, 35, 53, 21, 30, 43, 56, 34, 33, 17, 22, 24, 37, 41, 40, 50, 54, 56, 54, 36, 38, 42, 44, 56, 17, 18, 22, 24, 17, 48, 58, 23, 29, 58.

4. The double bar graph shows the average monthly temperatures of two cities over 4 months period. Read the graph carefully and answer the questions given below:

(i)What does each 1 cm block on the vertical axis represent?



(ii) What was the average monthly temperature in Dehradun in

(a) March

(b) April

(c) May

(d) June?

(iii) What was the average monthly temperature in Delhi for the whole 4 months?

(iv) In which month was the difference between the temperature of Delhi and

Dehradun maximum and how much?

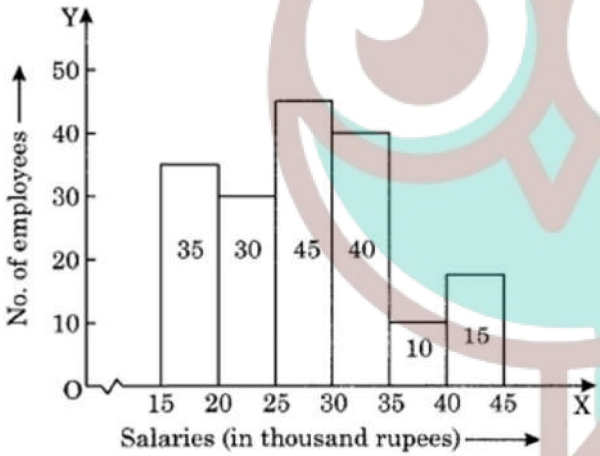
5. The following table represents the number of students in a school playing six different games.

Games	Number of students
Hockey	175
Football	200
Cricket	150
Tennis	50
Squash	75
Badminton	40

Present the above information on a bar graph.

Long Questions :

1. Prepare a grouped frequency table for the given histogram.



2. A bag contains 144 coloured balls represented by the following table. Draw a pie chart to show this information.

Colour	Number of balls
Red	12
Yellow	18
Blue	28
Green	42
White	44

3. Mrs. Verma spends her allowance in the following way.

Items	Percent
Lunch	25%
Hobby	20%
Recreations	40%
Saving	15%
Total	100%

Represent the above information by a pie chart.

4. What is the probability of getting a marble which is not red from a bag containing 3 black, 8 yellow, 2 red and 5 white marbles?

5. From a well shuffled deck of 52 playing cards, a card is selected at random. Find the probability of getting

(i) a black card

(ii) a black king

(iii) an ace

(iv) a card of diamond

Swotters

6. The frequency table of the weights (in kilograms) of the students is given alongside:

Answer the questions with reference to the given table:

Class intervals (Wt. in .kg)	Frequency (Number of Students)
40 ? 45	8
45 ? 50	15
50 ? 55	14
55 ? 60	9
60 ? 65	3

(i) How many classes are there in the given table?
(ii) What is the frequency of the class 50 to 55?
(iii) Which class has the maximum frequency?
(iv) Which is the class with frequency 9?
(v) What is the lower limit of the class 50 to 55?
(vi) What is the upper limit of the class 55 to 60?
(vii) In which class will a student weighing 57 kg be included?
(viii) How many student weights are given in the table?
(ix) State the number of students weighing less than 56 kg?
(x) What is the maximum weight of the student which can be included in the given table?

Answer Key-

Multiple Choice questions-

1. (d) $\frac{1}{10}$
2. (a) $\frac{7}{10}$
3. (b) 1
4. (b) $\frac{4}{5}$
5. (c) 360°
6. (c) $\frac{3}{10}$
7. (c) semi circular sector
8. (a) 6
9. (c) sectors

10. (b) 97.5

Very Short Answer :

1. (i) lower limit = 5

(ii) upper limit = 10

(iii) Class mark $= \frac{5+10}{2} = \frac{15}{2} = 7.5$

(iv) Class size = 10 – 5 = 5

2. The minimum height =112 cm

Maximum height = 165 cm

Range = Maximum height – Minimum height = 165 cm – 112 cm = 47 cm

3. Red colour is the most popular and the blue colour is the least popular.

4. Number greater than 4 = 5, 6

n(E) = 2

Sample space n(S) = 6

Probability of getting a number greater than 4

$= \frac{n(E)}{n(S)} = \frac{2}{6} = \frac{1}{3}$

Where re(E): Number of favourable outcomes

n(S): Total number of outcomes.

5. Sample space n(S) = 21 + 9 = 30

Number of girls n(E) = 9

(i) Probability of selecting a girl

$= \frac{n(E)}{n(S)} = \frac{9}{30} = \frac{3}{10}$

(ii) Probability of selecting a boy

$= \frac{n(E)}{n(S)} = \frac{21}{30} = \frac{7}{10}$

Short Answer :

1. (i) Percentage of Indian students $= \frac{180\times100}{360} = 50\%$

(ii) Percentage of African students $= \frac{45\times100}{360} = 12\frac{1}{2}\%$

2. Class-marks are

Class-mark

$$\frac{15+20}{2} = \frac{35}{2} = 17.5$$

$$\frac{20+25}{2} = \frac{45}{2} = 22.5$$

$$\frac{25+30}{2} = \frac{55}{2} = 27.5$$

$$\frac{30+35}{2} = \frac{65}{2} = 32.5$$

$$\frac{35+40}{2} = \frac{75}{2} = 37.5$$

$\therefore$ Value of the blank spaces are

Weights in kg	Class-mark
10–15	12.5
15–20	17.5
20–25	22.5
25–30	27.5
30–35	32.5
35–40	37.5

3.

Class-interval	Tally marks	Frequency
16–24	𝍸 𝍸 ||	12
24–32	𝍸	5
32–40	𝍸 𝍸	10
40–48	𝍸 ||	8
48–56	𝍸 |||	8
56–64	𝍸||	7
Total		**50**

4. (i) 1 cm block on vertical axis = 10°C

(ii) The average monthly temperature in Dehradun in the month of

(a) March was 25°C

(b) April was 34°C

(c) May was 40°C

(d) June was 36°C

(iii) The average monthly temperature in Delhi in the 4 months

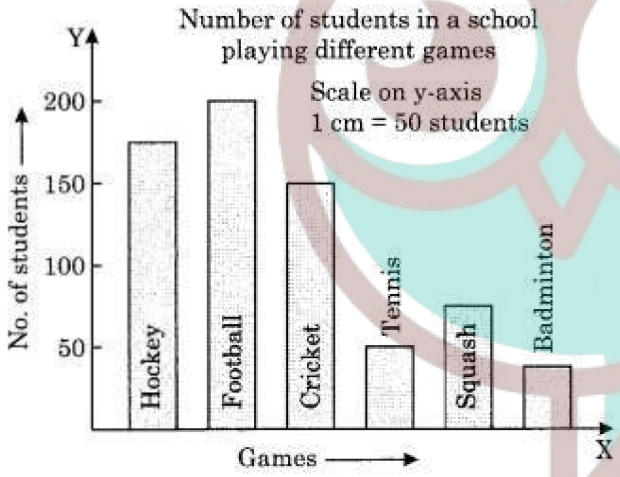
$$= \frac{\text{Temperature of (March + April + May + June)}}{4}$$

$$= \frac{30°C + 40°C + 45°C + 50°C}{4}$$

$$= \frac{165°C}{4} = 41.25°C$$

(iv) Difference between the average monthly temperature of Delhi and Dehradun was maximum in the month of June, i.e. (50° – 36°) = 14°C.

5.



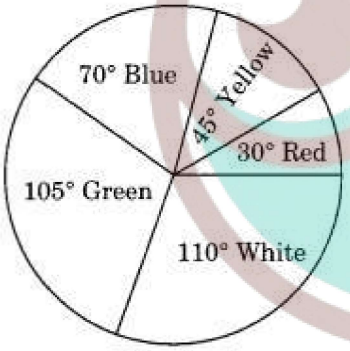
Long Answer :

1.

Salary (in thousand ₹)	Number of Employee
15–20	35
20–25	30
25–30	45
30–35	40
35–40	10
40–45	15

2.

Colour	Number of balls	Central Angle
Red	12	$\frac{12}{144} \times 360° = 30°$
Yellow	18	$\frac{18}{144} \times 360° = 45°$
Blue	28	$\frac{28}{144} \times 360° = 70°$
Green	42	$\frac{42}{144} \times 360° = 105°$
White	44	$\frac{44}{144} \times 360° = 110°$

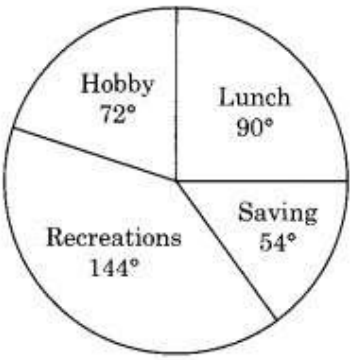


Pie chart

3.

Items	Percent	Central angle
Lunch	25%	$\frac{25}{100} \times 360° = 90°$
Hobby	20%	$\frac{20}{100} \times 360° = 72°$
Recreations	40%	$\frac{40}{100} \times 360° = 144°$
Saving	15%	$\frac{15}{100} \times 360° = 54°$

Swotters



4. Total number of balls = 3 black + 8 yellow + 2 red + 5 white = 18

n(S) = 18

Number of the balls which are not red = 3 + 8 + 5 = 16

n(E) = 16

Probability $= \frac{n(E)}{n(S)} = \frac{16}{18} = \frac{8}{9}$

5. Here, n(S) = 52

(i) Total number of black card = 26

n(E) = 26

Probability of getting a black card $= \frac{n(E)}{n(S)} = \frac{26}{52} = \frac{1}{2}$

(ii) Number of black king = 2

n(E) = 2

Probability of getting a black king $= \frac{n(E)}{n(S)} = \frac{2}{52} = \frac{1}{26}$

(iii) Number of aces = 4

n(E) = 4

Probability of getting an ace $= \frac{n(E)}{n(S)} = \frac{4}{52} = \frac{1}{13}$

(iv) Number of diamond cards = 13

n(E) = 13

Probability of getting a card of diamond $= \frac{n(E)}{n(S)} = \frac{13}{52} = \frac{1}{4}$

6.

(i) 5
(ii) 14
(iii) 45 to 50
(iv) 55 to 60
(v) 50
(vi) 60
(vii) 55 to 60
(viii) Total number of students = 8 + 15 + 14 + 9 + 3 = 49 students
(ix) Number of students weighing less than 56 kg = 8 + 15 + 14 = 37 students
(x) 65 kg

Swotters