

6. Statistics

Q.1 A) MCQ (each of 1 mark)

- 1) Following table shows the percentage of donors as per the blood group, the central angle for the group 'O' is -----

Blood group	O	A	B	AB
% Of persons	60	20	15	5

- a) 72° b) 108° c) 216° d) 54°
- 2) If the following information that is budget of a family is shown as a pie graph, then central angle for clothing is -----

Head	Rent	Clothing	Education	Saving	Food	Miscellaneous
Expenditure	Rs.2400	Rs.1800	Rs.1200	Rs.1200	Rs. 4800	Rs.600

- a) 72° b) 54° c) 36° d) 18°
- 3) The class mark of the class 15 – 20 is -----

- a) 17.5 b) 15.5 c) 17 d) 18.5

- 4) If assumed mean (A) = 57.5 $\sum fidi = -10$ and $\sum fi = 80$ then Mean = -----

- a) 57.625 b) 57.125 c) 57.375 d) 57.275 5)

- 5) Which of the following is not a measure of central tendency?

- a) Median b) deviation c) Mode d) Mean

- 6) If the mean of frequency distribution is 34.9, $\sum fixi = 1000 + a$, $\sum fi = 30$ then the value of a = -----

- a) 47 b) 48 c) 42 d) 45

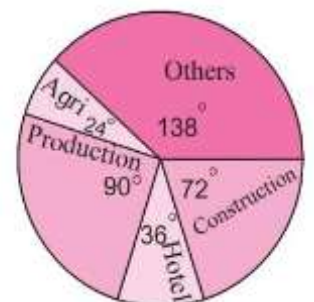
- 7) A box contains nails of different lengths as shown below, the median class will be -----

Length (in cm)	2.0 – 2.5	2.5 – 3.0	3.0 – 3.5	3.5 – 4.0	4.0 – 4.5
No. of nails	5	18	7	11	9

- a) 2.5 – 3.0 b) 3.0 – 3.5 c) 3.5 – 4.0 d) 4.0 – 4.5

- 8) Look at the pie diagram showing number of skilled workers in different fields the number of workers in the production is ----- if total number of workers is 10,000

- a) 2000 b) 1500 c) 2500 d) 3500



9) Class marks in a grouped frequency table are useful to find . . .

- a) Mean b) Median c) Mode d) All of these

10) The above data is to be shown by a frequency polygon. The coordinates of the points to show number of students in the class 130 – 140 are -----

Heights (in cm)	100 -110	110 -120	120 -130	130 -140	140 - 150
No. of students	6	8	14	10	4

- a) (130,10) b) (135,10) c) (10,135) d) (10,130)

Q. 1B) Attempt the following sub questions.

1) Find the class mark of the class 55 – 60

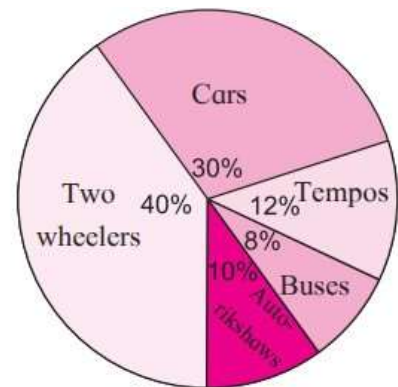
2) Write the Modal class

Class interval	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35
Frequency	30	35	40	75	15

3) Marks of 60 students in a class are tabulated below. For finding mode the Lower limit of modal class (L) = -----

Marks	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69
Number of students	3	8	16	12	10	8

4) Observe the adjacent pie diagram. It shows the percentages of number of vehicles passing a signal in a town between 8 am and 10 am. Find central angle for cars.



5) The table given below gives the marks of 160 students in the school.

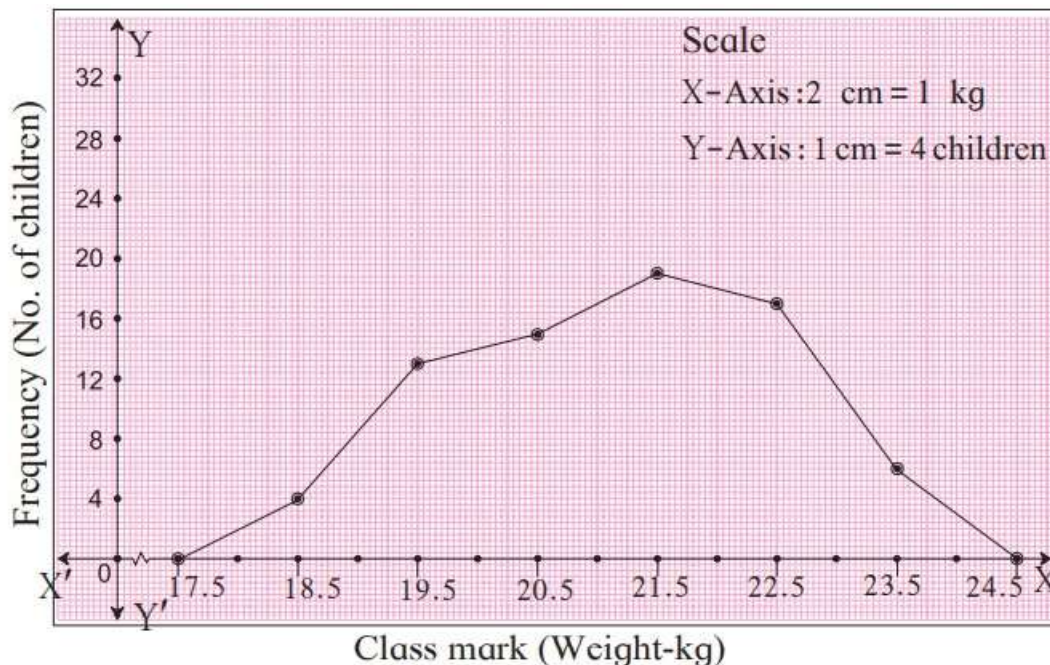
Marks	20 - 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 -90	90-100
No. of students	8	10	15	25	30	38	24	10

How many students are getting above 80 marks.

6) If the mean of the frequency distribution is 8.1 and $\sum f_i x_i = 132 + 5k$, $\sum f_i = 20$ then find K.

Q. 2 A) Complete the following activities. (Each of 2 marks)

1) Observe the frequency polygon and complete the table.



Class	18-19	19-20	20-21	21-22	22-23	23-24
Class mark	18.5	<input type="text"/>	20.5	21.5	<input type="text"/>	23.5
Frequency	4	13	15	19	17	6
Coordinates of points	(18.5, 4)	(19.5, 13)	<input type="text"/>	(21.5, 19)	<input type="text"/>	(23.5, 6)

2) Complete the following table to find the mean.

Weekly wages (Rupees)	Class mark (xi)	No. of workers (fi)	fixi
0-2000	1000	15	15000
2000-4000	<input type="text"/>	35	105000
4000-6000	5000	50	25000
6000-8000	7000	20	140000
		N = 120	$\sum fixi =$ <input type="text"/>

$\sum fixi$

$$\text{Mean} = \frac{\quad}{\sum fi}$$

$$= \frac{\boxed{\quad}}{120} = \boxed{\quad}$$

3) The following table shows causes of noise pollution. Complete the table to draw a pie diagram.

Causes	Percentage	Central angle
Construction	10%	<input type="text"/>
Traffic	<input type="text"/>	180°
Aircraft take off	9%	<input type="text"/>
Industry	20%	<input type="text"/>
Trains	11%	39.6

4) Complete the following activity to find median.

Class (Student's marks)	No. of students fi	Cumulative frequency less than the upper limit cf
0-20	4	4
20-40	20	24
40-60	30	54
60-80	40	94
80-100	6	100

Here , $L = \boxed{\quad}$, $N = 100$, $\frac{N}{2} = 50$, $c.f. = 24$, $f = 30$, $h = 20$

Median = (Formula)

$$= \boxed{\quad}$$

Median marks =

Q.2 B) Solve the following sub questions. (Each of 2 marks)

1) For the table given below find cumulative frequency table.

Daily No. of hours	8-10	10-12	12-14	14-16
Number of workers	150	500	300	50

2) Find the mode for the following frequency distribution.

Class	1 – 10	11 – 20	21 – 30	31 – 40	41 – 50
Frequency	2	3	5	7	1

Use formula: $\text{Mode} = L = \frac{f_0 - f_1}{2f_0 - f_1 - f_2} \times h$

3) Find mean of the following table.

Difference in ages(in years)	No. of couples (f_i)
0 – 2	1
2 – 4	2
4 – 6	8
6 – 8	5
8 – 10	3
10 – 12	1

Q. 3 A) Complete the following activity. (Each of 3 marks)

1) The following table shows the funds collected by 50 students for flood affected people. Find the mean of the funds

Fund (Rupees)	0-1000	1000-1500	1500-2000	2000-3000
No. of students	6	24	18	2

Solution : Let $A = 1250$, examining all $d_i, g = 250$.

Class Fund (₹)	Class mark x_i	$d_i = x_i - A = x_i - 1250$	$u_i = \frac{d_i}{g}$	Frequency f_i	$f_i u_i$
0-1000	500	<input type="text"/>	-3	6	-18
1000-1500	1250 → A	0	0	24	0
1500 - 2000	1750	500	2	18	<input type="text"/>
2000-3000	2500	1250	<input type="text"/>	2	10
Total				$\sum f_i = 50$	$\sum f_i u_i = 28$

$$\bar{u} = \frac{\sum f_i u_i}{\sum f_i} = \frac{28}{50} = \text{$$

$$\bar{u} g = \text{} \times 250 = \text{$$

$$\bar{X} = A + g \bar{u} = 1250 + 140 = 1390$$

∴ the average of the funds is ₹ 1390.

2) Complete the activity to find mean by direct method.

Weekly wages (Rupees)	Class mark (x_i)	No. of workers (f_i)	$x_i f_i$
1000 – 2000	1500	25	37500
2000 – 3000	<input type="text"/>	45	112500
3000 – 4000	3500	50	<input type="text"/>
4000 – 5000	4500	30	<input type="text"/>
		N = 150	$\sum f_i x_i =$ <input type="text"/>

$$\text{Mean} = \frac{\sum f_i x_i}{\sum f_i}$$

$$= \frac{\text{}}{150} = \text{$$

3) Complete the following activity to find median marks of the students

Class (Student's marks)	No. of students f_i	Cumulative frequency less than the upper limit $c.f$
0-20	4	4
20-40	20	24
40-60	30	54
60-80	40	94
80-100	6	100

Here, L = , N = 100, $\frac{N}{2} = 50$, c.f. = , f = 30, h = 20

$$\text{Median} = L + \frac{\frac{N}{2} - c.f}{f} \times h \quad (\text{Formula})$$

$$= \text{} \quad (\text{keeping values in the formula})$$

$$= \text{} + \frac{\text{}}{30} \times 20$$

$$\text{Median marks} = \text{$$

4) The table below gives the ages of 120 drivers of cars involved in accidents during a certain year. Complete the table and draw a pie diagram.

Age of driver (in years)	Number of drivers	Central angle
Under 20	25	75°
20 – 40	50	<input type="text"/>
40 – 60	35	105°
Over 60	10	30°

Q. 3 B) Solve the following. (Each of 3 marks)

1) Draw the histogram.

Wages (in ₹)	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90
No. of workers	3	8	12	6	4

2) In a school the weekly pocket money of 50 students is as follows. Find mode of pocket money.

Pocket money (in ₹)	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
No. of students	2	8	12	14	8	6

3) Draw frequency polygon of the following distribution

Weight of packet	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Number of packets	3	5	8	5	4

Q. 4 Attempt the following sub questions.(Each of 4 marks)

1) Find the mean by step deviation method.

Class	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40
Frequency	5	6	8	12	6	3

2) If the mean of the weight of packet is 12.9 gm. Find the value of b

Weight of packet	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Number of packets	3	b	8	5	4

3) Find the mode for the following distribution.

Ages (in years)	1 – 10	11 – 20	21 – 30	31 – 40	41 – 50
No. of children	2	3	5	7	1

4) Calculate the missing frequency from the following distribution, if the median of distribution is 24.

Age in years	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of persons	5	25	[REDACTED]	18	7

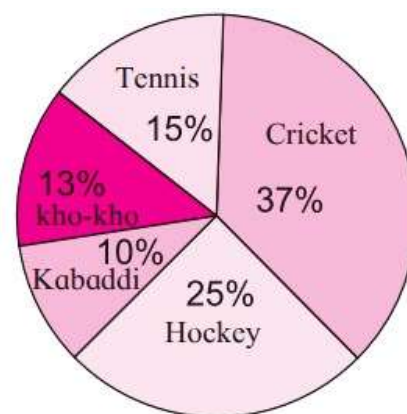
5) Draw histogram and frequency polygon.

Max. temp.	24–28	28–32	32–36	36–40	40–44
No. of towns	4	5	7	8	6

Q. 5 Solve the following sub question. (Each of 3 marks)

1) The angles of a triangle ABC are in the ratio 1:2:3, show this information in pie diagram.

2) 120 students of standard 10 were asked which game they like and from this information pie chart is prepared, observe the pie diagram and answer the questions.



- How many students like to play Tennis?
- What will be central angle for Kho-Kho?
- How many students like Kabaddi?

3) Observe the frequency polygon given alongside

Prepare frequency table and find mean of the net asset value.

