MATHS

BOOKS - ICSE

STATISTICS

Topic 1 3 Marks Questions

1. Given below are the marks obtained by 30 students in an examination :

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08   17   33   41   47   23   20   34   09   18   42   14   30
19   29   11   36   48   40   24   22   02   16   21   15   32
47   44   33   01
```

Taking class intervals 1-10, 11-20 ,......, 41 - 50 , Make a frequency table for the above distribution.

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2. Find the actual lower class limits , upper class limits and mid values of the classes :

10 -19 , 20 - 29 , 30 - 39 , and 40 - 49

3. Use the table given below to find : (a) The actual class limits of the fourth class. (b) The class boundaries of the sixth class. (c) The class mark of the third class. (d) The upper and lower limits of the fifth class. (e) The size of the third class.

Class interval	Frequency
30 − 34	7
35 − 39	10
40 − 44	12
45 − 49	13
50 − 54	8
55 − 59	4

4. Use the table given below to find : (a) The actual class limits of the fourth class. (b) The class boundaries of the sixth class. (c) The class mark of the third class. (d) The upper and lower limits of the fifth class. (e) The size of the third class.

Class interval	Frequency
30 – 34	7
35 – 39	10
40 – 44	12
45 – 49	13
50 – 54	8
55 – 59	4

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5. Use the table given below to find :

The class marks of the third class.

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6. Use the table given below to find : (a) The actual class limits of the fourth class. (b) The class boundaries of the sixth class. (c) The class mark

of the third class. (d) The upper and lower limits of the fifth class. (e) The size of the third class.

Class interval	Frequency
30 – 34	7
35 – 39	10
40 – 44	12
45 – 49	13
50 – 54	8
55 – 59	4

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7. Use the table given below to find : (a) The actual class limits of the fourth class. (b) The class boundaries of the sixth class. (c) The class mark of the third class. (d) The upper and lower limits of the fifth class. (e) The size of the third class.

Class interval	Frequency
30 – 34	7
35 – 39	10
40 – 44	12
45 – 49	13
50 – 54	8
55 – 59	4

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8. Construct a cumulative, frequency distribution table from the frequency table given below :

Calss Interval	Frequency
0 – 8	9
8 – 16	13
16 – 24	12
24 – 32	7
32 – 40	15

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9. Construct a cumulative frequency distribution table from the frequency table given below :

Calss Interval	Frequency
1 – 10	12
11 – 20	18
21 – 30	23
31 – 40	15
41 – 50	10

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10. Construct a frequency distribution table from the following cumulative frequency distribution :

Calss Interval	Cumulative Frequency
10 – 19	8
20 – 29	19
30 – 39	23
40 – 49	30

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11. Construct a frequency distribution table from the following cumulative frequency distribution :

Calss Interval	Frequency
5 – 10	18
10 – 15	30
15 – 20	46
20 – 25	73
25 – 30	90

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12. The value of π upto 50 decimal places is :

3.1 4159 26 5358 97 9423 84 62 64 33 832 7950 28 84 19 71 69 3993 7510

Make a frequency distribution table of the digits from 0 to 9 after the decimal place.

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13. The value of π upto 50 decimal places is :

3.1 4159 26 5358 97 9423 84 62 64 33 832 7950 28 84 19 71 69 3993 7510

Which are the most and the least occurring digits ?

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Topic 1 4 Marks Questions

1. Construct the frequency distribution table from the following cumulative frequency table :

Ages	No. of Students
Below 4	0
Below 7	85
Below 10	140
Below 13	243
Below 16	300

State the number of students in the age group 10 - 13.

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2. Construct the frequency distribution table from the following cumulative frequency table :

Ages	No. of Students
Below 4	0
Below 7	85
Below 10	140
Below 13	243
Below 16	300

State the age - group which has the least number of students .

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3. Fill in the blanks in the following table:

Class Interval	Frequency	Cumulative Frequency
25 – 34	....	15
35 – 44	....	28
45 – 54	21	....
55 – 64	16	....
65 – 74	....	73
75 – 84	12	....

4. Draw frequency polygons for each of the following :

Using histogram

Class Interval	Frequency
10 — 30	4
30 — 50	7
50 — 70	5
70 — 90	9
90 — 110	5
110 — 130	6
130 — 150	4

5. Draw frequency polygons for each of the following :

Without using histogram.

Class Interval	Frequency
10 — 30	4
30 — 50	7
50 — 70	5
70 — 90	9
90 — 110	5
110 — 130	6
130 — 150	4

6. Construct a combined histogram and frequency polygon for the following frequency distribution :

Calss Interval	Frequency
10 — 20	3
20 — 30	5
30 — 40	6
40 — 50	4
50 — 60	2

7. Construct a frequency polygon for the following data.

Calss Interval	Frequency
10 – 14	5
15 – 19	8
20 – 24	12
25 – 29	9
30 – 34	4

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8. Construct a frequency polygon for the following frequency distribution , using a graph sheet .

Marks	No. of Students
40 — 50	7
50 — 60	18
60 — 70	26
70 — 80	37
80 — 90	20
90 — 100	6

Use 2 cm = 10 Marks

2 cm = 5 Students [Specimen paper , 2019]

9. Construct a frequency polygon for the following distribution . Using a graph sheet.

Marks	No. of Students
30 — 40	6
40 — 50	15
50 — 60	28
60 — 70	34
70 — 80	18
80 — 90	8

Topic 2 3 Marks Questions

1. Find the mean of first ten odd natural numbers.

2. The mean of 5 numbers is 18. If one number is excluded, the mean of remaining numbers becomes 16. Find the excluded number.

3. If the mean of observations x, $x + 2$, $x + 4$, $x + 6$ and $x + 8$ is 11, find the value of x

4. If the mean of observations x, $x + 2$, $x + 4$, $x + 6$ and $x + 8$ is 11, find the mean of the first three obervations.

5. The mean weight of 120 students of a school is $52 \cdot 75$ kg. If the mean weight of 50 of them is 51 kg, find the mean weight of the remaining students.

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6. The following data have been arranged in ascending order. If their median is 63, find the value of x.

34,37,53,55,x,x+2,77,83,89 and 100.

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7. Out of 10 students, who appeared in a test, three secured less than 30 marks and 3 secured more than 75 marks. The marks secured by the remaining 4 students are 35, 48, 66 and 40. Find the median score of the whole group.

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8. The mean of 10 numbers is 24. If one more number is included, the new mean is 25. Find the included number.

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9. If the mean of the observation a , a + 6 , a + 2 , a + 8 and a + 4 is 11 . Find .

the value of a

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10. If the mean of the observation a , a + 6 , a + 2 , a + 8 and a + 4 is 11 . Find .

the median.

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1. If different values of variable x are 9.8, 5.4 , 3.7 , 1.7 , 1.8 , 2.6 , 2.8 , 10.5

and 11.1 , find

the mean $\bar{x}$

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2. If different values of variable x are 9.8, 5.4 , 3.7 , 1.7 , 1.8 , 2.6 , 2.8 , 10.5

and 11.1 , find

the value of $\sum (x - \bar{x})$

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3. The mean of 15 observations is 32. Find the resulting mean if each

observation is :

increased by 3

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4. The mean of 15 observations is 32. Find the resulting mean if each observation is :

divided by 0.5

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5. The mean of 15 observations is 32. Find the resulting mean if each observation is :

decreased by 20%

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6. The mean of 200 items was 50. Later on, it was discovered that two items were misread as 92 and 8 instead of 192 and 88. Find the correct mean.

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7. The mean marks (out of 100) of boys and girls in an examination are 70 and 73 respectively. If the mean marks of all the students in that examination is 71, find the ratio of the number of boys the number of girls.

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8. Find the median of :

25,16,26, 16, 32, 31, 19, 28 and 35

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9. Find the median of :

233 , 173 , 189 , 208 , 194 , 204 , 194 , 185 ,200 and 220

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10. Find the mean of the following data :

30,32,24,34, 26,28, 30, 35, 33, 25

Show that the sum of the deviations of all the given observations from the mean is zero.

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11. Find the mean of the following data :

30,32,24,34, 26,28, 30, 35, 33, 25

Find the median of the given data.

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12. Find the mean and median of all the positive factors of 72.

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13. Find the mean proportion between : 3 . 6 and 1 . 6

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14. Find Median of the following data :

25, 10,40,88,45,60,77,36,18,95,56,65,7,0,38 and 83

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Example

1. Given below are the marks obtained by 32 students in an examination :

2923304011011535
4003121830242529
3132252227121302
0709191332392503

Taking class intervals 1 - 10, 11 - 20.............. 31 - 40, make a frequency table for the above distribution.

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2. Given below are the marks obtained by 24 students in an examination :

181716242519412

3242442143262840

2930372749273431

Taking class intervals 10 - 20, 20 - 30, ... , 50 - 60, make a frequency table for the above distribution.

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3. Draw a histogram to represent the following

Class-interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	7	12	15	10	6

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4. Draw a histogram to represent the following :

Class-interval	40 – 48	48 – 56	56 – 64	64 – 72	72 – 80
Frequency	15	25	35	30	10

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5. Draw a histogram for the following data :

Class-interval	1 – 10	11 – 20	21 – 30	31 – 40
Frequency	7	12	15	13

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6. Draw a frequency polygon from the following data, giving the age of doctors working in C.GH.S. in a city

Age (in years)	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50
No. of doctors	40	60	50	35	20

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7. Draw a frequency polygon from the following frequency distribution

C.I.	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
f	4	8	12	10	7	4

Exercise 18 A

1. State, which of the following variables are continuous and which are discrete :

number of children in your class.

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2. State, which of the following variables are continuous and which are discrete :

distance travelled by a car.

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3. State, which of the following variables are continuous and which are discrete :

sizes of shoes.

4. State, which of the following variables are continuous and which are discrete :

time.

5. State, which of the following variables are continuous and which are discrete :

number of patients in a hospital.

6. Given below are the marks obtained by 30 students in an examination :

08 17 33 41 47 23 20 34 09 18 42 14 30
19 29 11 36 48 40 24 22 02 16 21 15 32
47 44 33 01

Taking class intervals 1-10, 11-20 ,......., 41 - 50 , Make a frequency table for the above distribution.

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7. The marks of 24 candidates in the subject mathematics are given below :

45, 48, 15, 23, 30, 35, 40, 11, 29, 0, 3, 12, 48, 18, 30, 15, 30, 1, 1, 42, 23, 2, 3, 44

The maximum marks are 50. Make a frequency distribution taking class intervals 0 - 10, 10 - 20, ...

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8. Fill in the blanks : (a) A quantity which can vary from one individual to another is called a .... (b) Sizes of shoes are .... variables. (c) Daily

temperature is .... variable. (d) The range of the data 7, 13, 6, 25, 18, 20, 16 is ....(e) In the class interval 35 - 46, the lower limit is ....and upper limit is .... (f) The class mark of class interval 22 - 29 is ....

9. Find the actual lower class limits , upper class limits and mid values of the classes :

10 -19 , 20 - 29 , 30 - 39 , and 40 - 49

10. Find the actual lower and upper class limits and also the class marks of the classes :

1.1 - 2.0, 2.1 - 3.0 and 3.1 - 4.0.

11. Use the table given below to find : (a) The actual class limits of the fourth class. (b) The class boundaries of the sixth class. (c) The class mark of the third class. (d) The upper and lower limits of the fifth class. (e) The size of the third class.

Class interval	Frequency
30 – 34	7
35 – 39	10
40 – 44	12
45 – 49	13
50 – 54	8
55 – 59	4

12. Construct a cumulative, frequency distribution table from the frequency table given below :

Calss Interval	Frequency
0 – 8	9
8 – 16	13
16 – 24	12
24 – 32	7
32 – 40	15

13. Construct a cumulative frequency distribution table from the frequency table given below :

Calss Interval	Frequency
1 – 10	12
11 – 20	18
21 – 30	23
31 – 40	15
41 – 50	10

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14. Construct a frequency distribution table from the following cumulative frequency distribution :

Calss Interval	Cumulative Frequency
10 – 19	8
20 – 29	19
30 – 39	23
40 – 49	30

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15. Construct a frequency distribution table from the following

cumulative frequency distribution :

Calss Interval	Frequency
5 – 10	18
10 – 15	30
15 – 20	46
20 – 25	73
25 – 30	90

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16. Construct a frequency table from the following data

Marks	No of students
less than10	6
less than20	15
less than30	30
less than40	39
less than50	53
les than60	70

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17. Construct the frequency distribution table from the following cumulative frequency table:

Ages	No of Students
Below4	0
Below7	85
Below10	140
Below13	243
Below16	300

State the number of students in the age group 10-13

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18. Construct the frequency distribution table from the following cumulative frequency table:

Ages	No of students
Below4	0
Below7	85
Below10	140
Below13	243
Below16	300

State the age group which has the least number of students

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19. Fill in the blanks in the following table:

Class Interval	Frequency	Cumulative Frequency
25 – 34	....	15
35 – 44	....	28
45 – 54	21	....
55 – 64	16	....
65 – 74	....	73
75 – 84	12	....

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20. The value of π upto 50 decimal places is :

3.1 4159 26 5358 97 9423 84 62 64 33 832 7950 28 84 19 71 69 3993 7510

Make a frequency distribution table of the digits from 0 to 9 after the decimal place.

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21. The value of π upto 50 decimal places is :

3.1 4159 26 5358 97 9423 84 62 64 33 832 7950 28 84 19 71 69 3993 7510

Which are the most and the least occurring digits ?

Exercise 18 B

1. Construct a frequency polygon for the following distribution :

Class-intervals	0 – 4	4 – 8	8 – 12	12 – 16	16 – 20	20 – 24
Frequency	4	7	10	15	11	6

2. Construct a combined histogram and frequency polygon for the following frequency distribution :

Class-intervals	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	3	5	6	4	2

3. Construct a frequency polygon for the following data :

Class-intervals	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34
Frequency	5	8	12	9	4

4. The daily wages in a factory are distributed as follows

Daily wages (in ₹)	125 – 175	175 – 225	225 – 275	275 – 325	325 – 375
Number of workers	4	20	22	10	6

Draw a frequency polygon for this distribution.

5. Draw frequency polygons for each of the following frequency distributions :

using histogram

C.I.	10–30	30–50	50–70	70–90	90–110	110–130	130–150
f	4	7	5	9	5	6	4

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6. Draw frequency polygons for each of the following frequency distributions :

without using histogram.

C.I.	5–15	15–25	25–35	35–45	45–55	55–65
f	8	16	18	14	8	2

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