

Time : 1 Hour 30 Minute

STD 10 Maths

Total Marks : 50

Chapter Based Test

Section A

* Choose the right answer from the given options. [1 Marks Each] [7]

1. Consider the frequency distribution of the heights of 60 students of a class:

Height (in cm)	No. of Students	Cumulative Frequency
150-155	16	16
155-160	12	28
160-165	9	37
165-170	7	44
170-175	10	54
175-180	6	60

The sum of the lower limit of the modal class and the upper limit of the median class is:

- (A) 310 (B) 315 (C) 320 (D) 330
2. The median of a given frequency distribution is found graphically with the help of:
- Histogram.
 - Frequency curve.
 - Frequency polygon.
 - Ogive.
3. The diameter of a sphere is 6cm. It is melted and drawn in to a wire of diameter 2mm. The length of the wire is:
- 12m
 - 18m
 - 36m
 - 66m
4. A right circular cylinder of radius r and height h ($h = 2r$) just encloses a sphere of diameter:
- h
 - r
 - $2r$
 - $2h$
5. The height of a cone is 30cm. A small cone is cut off at the top by a plane parallel to the base. If its volume be of the volume of the given cone, then the height above the base at which the section has been made, is:
- 10cm
 - 15cm
 - 20cm
 - 25cm

6.

The radii of the circular ends of a frustum are 6cm and 14cm. If its slant height is 10cm, then its vertical height is:

- a. 6cm
- b. 8cm
- c. 4cm
- d. 7cm

7. If a cone is cut into two parts by a horizontal plane passing through the mid-point of its axis, the ratio of the volumes of the upper part and the cone is:
- a. 1 : 2
 - b. 1 : 4
 - c. 1 : 6
 - d. 1 : 8

* A statement of Assertion (A) is followed by a statement of Reason (R). [3]

Choose the correct option.

8. **Directions:** In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

Assertion: If the value of mode and mean is 60 and 66 respectively, then the value of median is 64.

Reason: Median = (mode + 2 mean)

- a. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- b. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- c. Assertion (A) is true but reason (R) is false.
- d. Assertion (A) is false but reason (R) is true.

9. **Directions:** In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

Assertion: If the value of mode and mean is 60 and 66 respectively, then the value of median is 64.

Reason: Median = (mode + 2 mean)

- a. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- b. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- c. Assertion (A) is true but reason (R) is false.
- d. Assertion (A) is false but reason (R) is true.

10. **Directions:** In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

Assertion: If for a certain frequency distribution, $l = 24.5$, $h = 4$, $f_0 = 14$, $f_1 = 14$, $f_2 = 15$ then the value of mode is 25.

Reason: Mode of a frequency distribution is given by:

$$\text{Mode} = l + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right) \times h$$

- a. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- b. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

- c. Assertion (A) is true but reason (R) is false.
 d. Assertion (A) is false but reason (R) is true.

* Answer the following questions in one sentence. [1 Marks Each]

[4]

11. Find the mode of the following data:
 3, 3, 7, 4, 5, 3, 5, 6, 8, 9, 5, 3, 5, 3, 6, 9, 7, 4
12. Find the mode of the following data:
 3, 5, 7, 4, 5, 3, 5, 6, 8, 9, 5, 3, 5, 3, 6, 9, 7, 4
13. Find the mode of the following data:
 3, 3, 7, 4, 5, 3, 5, 6, 8, 9, 5, 3, 5, 3, 6, 9, 7, 4
14. Consider the following frequency distribution:

Class	0-5	6-11	12-17	18-23	24-29
Frequency	13	10	15	8	11

Find the upper limit of the median class.

Section B

* Given section consists of questions of 2 marks each.

[10]

1. The distribution given below shows the number of wickets taken by bowlers in one-day cricket matches. Find the mean number of wickets by choosing a suitable method. What does the mean signify?

Number of Wickets	20-60	60-100	100-150	150-250	250-350	350-450
Number of Bowlers	7	5	16	12	2	3

2. The shirt sizes worn by a group of 200 persons, who bought the shirt from a store, are as follows:

Shirt size	37	38	39	40	41	42	43	44
Number of persons	15	25	39	41	36	14	15	12

Find the modal shirt size worn by the group.

3. Write the median class of the following distribution:

Classes	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	4	8	10	12	8	4

4. Find the mode of the following distribution.

Class-interval	25-30	30-35	35-40	40-45	45-50	50-60
Frequency	25	34	50	42	38	14

5. Write the lower limit of the modal class of the following frequency distribution?

Age (in years)	0-10	10-20	20-30	30-40	40-50	50-60
Number of patients	16	13	6	11	27	18

Section C

* Given section consists of questions of 3 marks each.

[12]

1. 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

2. Consider the following distribution of daily wages of 50 workers of a factory.

Daily wages (in Rs.)	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. A hemispherical bowl of internal radius 15cm contains a liquid. The liquid is to be filled into cylindrical-shaped bottles of diameter 5cm and height 6cm. How many bottles are necessary to empty the bowl?
4. A solid is in the form of a cylinder with hemispherical ends. Total height of the solid is 19cm and the diameter of the cylinder is 7cm. Find the volume and total surface area of the solid.

Section D

- * Given section consists of questions of 5 marks each. [10]

1. A solid is in the shape of a frustum of a cone. The diameters of the two circular ends are 60cm and 36cm and the height is 9cm. Find the area of its whole surface and the volume.
2. In the following data, find the values of p and q. Also, find the median class and modal class.

Class	Frequency (f)	Cumulative frequency (cf)
100-200	11	11
200-300	12	p
300-400	10	33
400-500	q	46
500-600	20	66
600-700	14	80

Section E

- * Case study based questions [4]

1. Marks obtained by 40 students of a class-10 in an examination. Out of 50 are given below:

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	3	11	9	12	5

- i. While computing mean of a grouped data, we assume that the frequencies are:
- ii. What will be the upper limit of the median class?
- iii. The sum of lower limit of model class and upper limit of median class is:

Or

Estimate the mean marks obtain by a student:
