CLASS -10
MATHEMATICS ,
HOTS QUESTIONS.

Multiple Choice Questions

1.The median of a set of 9 distinct observations is 20.5. If each of the largest 4 observations of the set is increased by 2, the median of the new set
(a) is increased by 2
(b) is decreased by 2
(c) is two times of the original number
(d) remains the same as that of the original set.

2.If the mean of a, b, c is M and ab + bc + ca= 0 then the mean of a^2, b^2, c^2 is
(a) $5 M^2$ (b) $3 M^2$ (c) M^2 (d) $9 M^2$

3. If the mean of x and $\frac{1}{x}$ is M , then the mean of x^3 and $\frac{1}{x^3}$ is

(a) $\frac{M^2-3}{2}$ (b) $M(4M^2 - 3)$ (c) M^3 (d) $M^3 + 3$

Fill in the blanks.

4. If mean of 1, 2, 3, ..., n is $\frac{6n}{11}$, then the value of n is ------

5. Mode and mean of a data are 12k and 15k. Median of the data is -------.

Answer the following.
6. If mean = (3 median - mode). k, then find the value of k.

Short Answer Type II S

7.Find the mode of the following frequency distribution:

Marks	Less than 20	Less than 40	Less than 60	Less than 80	Less than 100
Number of students	4	10	28	36	50

Long answer Type
8.   The median of the following data is 525. Find the values of x and y if the total frequency is100.

Class interval	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000
Frequency	2	5	x	12	17	20	y	9	7	4

9.The following data indicates the marks of 53 students in Mathematics.
Draw aless than type ogive for the data above and hence find the median.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Number of Students	5	3	4	3	4	4	7	9	7	8

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10.The mean of the following frequency distribution is 50, but the frequencies f_1 and f_2 in classes 20-40 and 60-80, respectively are not known. Find these frequencies, if the sum of all the frequencies is 120.

Class	0-20	20-40	40-60	60-80	80-100
Frequency	17	f1	32	F2	19