PRAGATHI...THE SCHOOL

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GRADE X	***Mathematics***	***Date : 03/11/2022***
Time Allowed: 1 Hrs	***U*NIT TEST**	***Max Marks: 30***

General Instructions :

1. This Question paper contains - **five sections** A, B, C, D and E. Each section is compulsory. However, there are internal choices in some questions.
2. **Section A** has 3 **MCQ's and 01** Assertion-Reason based questions of 1 mark each.
3. **Section B** has 3 **Very Short Answer (VSA)-type** questions of 2 marks each.
4. **Section C** has 2 **Short Answer (SA)-type** questions of 3 marks each.
5. **Section D** has 2 **Long Answer (LA)-type** questions of 5 marks each.
6. **Section E** has **1 source based/case based/passage based/integrated units of assessment** (4 marks each) with sub parts.

SECTION A

(Multiple Choice Questions) **Each question carries 1 mark**

1. Which is the empirical relation between Mean, Median and Mode

(a) 3Mean =Mode +2Median (b) 3Median=Mode +2Mean

(c) 2Median= Mode +3Mean (d) 3Median=Mode -2Mean

2. Mean of the following distribution is 2.5. Find the value of 'y'

Variable x	1	2	3	4	5
Frequency y	4	5	Y	1	2

(a) 3 (b) 4 (c) 5 (d) 2

3. The Arithmetic Mean of 1,2, 3, 4, ... n is

(a) $\frac{n+1}{2}$ (b) $\frac{n-1}{2}$ (c) $\frac{n}{2}$ (d) $\frac{n}{2}+1$

ASSERTION-REASON BASED QUESTIONS

In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

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

4. **Assertion**: the mode of the call received on 7 consecutive day 11,13,13,17,19,23,25 is 13.
Reason: Mode is the value that appears most frequent

SECTION B

This section comprises of very short answer type-questions (VSA) of 2 marks each

7. Find the value of p, if the arithmetic mean of the following distribution is 25:

CI	0-10	10-20	20-30	30-40	40-50
F	5	8	15	p	6

8. Find the value of x, if the mode of following distribution is 45

CI	0-20	20-40	40-60	60-80	80-100
F	5	10	x	6	3

9. Calculate the median from the following data:

CI	0-10	10-20	20-30	30-40	40-50
F	5	15	30	8	2

OR

In a frequency distribution, if a = assumed mean =55, $\sum f_i = 100$, h=10 and $\sum f_i u_i = -30$ then Find the mean of the distribution.

SECTION C

(This section comprises of short answer type questions (SA) of 3 marks each)

10. Calculate the median from the following data:

Marks below	10	20	30	40	50	60	70	80
No. of students	15	35	60	84	96	127	198	250

11. Find the mode age of the patients from the following distribution :

Age(in years)	6-15	16-25	26-35	36-45	46-55	56-65
No. of patients	6	11	21	23	14	5

OR

Find the median marks for the following distribution:

Marks	Below 10	Below 20	Below 30	Below 40	Below 50	Below 60
No. of Students	6	15	29	41	60	70

SECTION D

(This section comprises of long answer-type questions (LA) of 5 marks each)

12. Find the value of f_1 from the following data, if its mode is 65

Class	Frequency
0 - 20	6
20 - 40	8
40 - 60	f_1
60 - 80	12
80 - 100	6
100 - 120	5

Where frequency 6, 8, f_1 and 12 are in ascending order

13. The mean of the following distribution is 53. Find the missing frequencies f1 and f2

Classes	0-20	20-40	40-60	60-80	80-100	Total
Frequency	15	f1	21	f2	17	100

OR

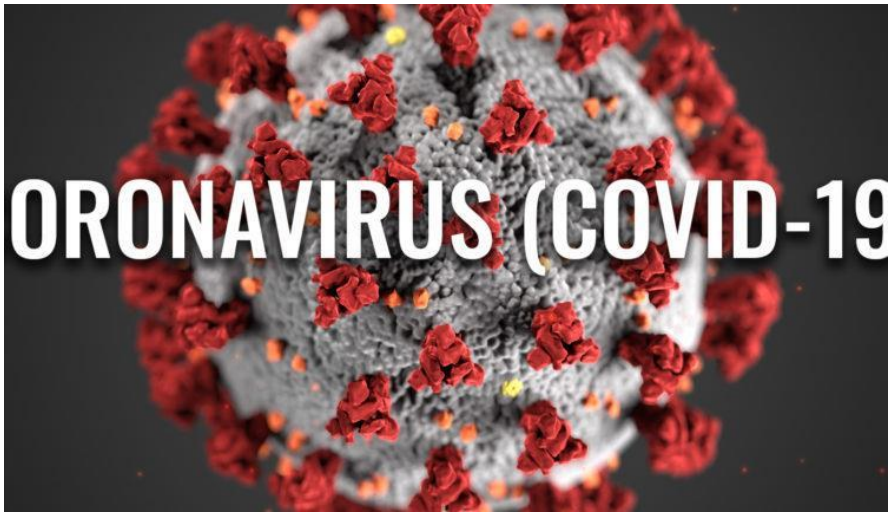
Find the values of x and y if the median of the following data is 31

Class	0-10	10-20	20-30	30-40	40-50	50-60	Total
Frequency	5	X	6	Y	6	5	40

SECTION E

(This section comprises of 1 case-study/passage-based questions of 4 marks each with two sub-parts. First two case study questions have three sub -parts (i), (ii), (iii) of marks 1, 1, 2 respectively. The third case study question has two sub-parts of 2 marks each.)

Case Study: Direct income in India was drastically impacted due to the COVID-19 lockdown. Most of the companies decided to bring down the salaries of the employees up to 50%



The following table shows the salaries (in percent) received by 50 employees during lockdown.

Salary received in %	50-60	60-70	70-80	80-90
Number of employees	18	12	16	4

Based on the above information, answer the following questions.

i. Find the total number of persons whose salary is reduced by more than 20 %.

ii. Calculate the median of the given data