



# S-1183

Total Pages : 3

Roll No. ....

## MA-10

### Elementary Mathematics

Elementary Mathematics

Examination, 2022 (Dec.)

**Time : 2 Hours]**

**Max. Marks : 70**

**Note :** This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

### SECTION-A

#### (Long Answer Type Questions)

**Note :** Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

**1.** Calculate the median from the following data :

Rent (in Rs.)	15-25	25-35	35-45	45-55	55-65	65-75	75-85	85-95
No. of houses	8	10	15	25	40	20	15	7

2. The ratio between the curved surface area and total surface of a right circular cylinder is 1 : 2. Find the volume of the cylinder, if its total surface area is  $616 \text{ cm}^2$ .
3. Three years ago, the population of a town was 50000. If the annual increase during three successive years be rate of 4%, 5% and 3% respectively, find the present population.
4. If  $\log_2(x^2 + x) - \log_2(x + 1) = 5$ , then find the value of  $x^2 - 2x + 1 = 0$ .
5. Simplify :

$$\frac{64^{-1/3}64^{1/3}}{8^{-1/3}} \cdot \frac{-(64)^{2/3}}{16^{1/3} \cdot 32^{1/3}}$$

## SECTION-B

### (Short Answer Type Questions)

**Note :** Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. If the mean of the following data is 20.6. Find the value of P :

X :	10	15	P	25	35
f :	3	10	25	7	5

2. Find the profit and loss percent when:
    - (a) C.P.= Rs. 4000 and profit = Rs. 40.
    - (b) S.P.= Rs. 1272 and loss = Rs. 328.
  
  3. Find the simple interest, when principal = 2000, Rate of interest = 5% per annum and time = 5 years.
  
  4. Find the value of  $\sin 75^\circ$ .
  
  5. What do you mean by measures of Central tendency? Differentiate mean, median and mode.
  
  6. Find the length of the longest rod that can be placed in a room 12 m long, 9 m broad and 8 m high.
  
  7. Prove that  $(1 - \cos^2\theta)\operatorname{cosec}^2\theta = 1$ .
  
  8. Find the HCF of the following numbers :
    - (a) 30, 104.
    - (b) 15, 25, 72.
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