



# All India Mahila Sangh

## अखिल भारतीय महिला संघ

Registered Under Societies Registration Act 27 of 1975 Govt of Tamilnadu  
Recognised by Women's Empowerment Act



### Main Examination (Academic-2020 Session)

### X-Standard – MATHEMATICS

Question Code: AC20MAT203

Subject Code: 203

Time: 2 Hours

Maximum Marks: 100

**Answer any 10 Questions :**

**10 \* 10 = 100**

- 1) Let  $P = (a, b, c)$ ,  $Q = (s, h, x, y)$  and  $R = (a, e, f, s)$  find  $R \setminus (P \cap Q)$
- 2) In  $\triangle ABC$ ,  $AE$  is the external bisector of  $\angle A$  meeting  $BC$  produced at  $E$ . If  $AB = 10\text{cm}$ ,  $AC = 6\text{cm}$ , and  $BC = 12\text{cm}$  then Find  $CE$ .
- 3) Factorize  $2x^3 - 3x^2 - 2x + 2$  into linear factors.
- 4) Find the standard deviation of the following distribution.

x	70	74	78	82	86	90
f	1	3	5	7	8	12

- 5) Let  $A = (6, 9, 15, 18, 21)$ ;  $B = (1, 2, 4, 5, 6)$  and  $f: A \rightarrow B$  be defined by  $f(x) = \frac{x-3}{3}$

Represent  $f$  by

- (i) an arrow diagram
- (ii) a set of ordered pairs
- (iii) a table
- (iv) a graph

6) A function  $F : -3, 7 \Rightarrow \mathbb{R}$  it is defined as follows:

$$\begin{array}{ll} 4x^2-1 & -3 \leq x < 2 \\ 3x-2 & 2 \leq x \leq 4 \\ 2x-3 & 4 < x \leq 6 \end{array}$$

Find

- 1)  $f(5) + f(6)$
  - 2)  $f(1) - f(-3)$
  - 3)  $f(-2) - f(4)$
  - 4)  $\frac{f(3) + f(-1)}{2f(6) - f(1)}$
- 7) In a town 85% of the people speak Tamil, 40% Speak English and 20% Speak Hindi. Also 32% Speak English and Tamil, 13% Speak Tamil and Hindi and 10% Speak English and Hindi. Find the percentage of people who can speak all the three languages.
- 8) Construct a Cyclic Quadrilateral ABCD where  $AB=6$  cm,  $AD= 4.8$  cm,  $BD = 8$  cm and  $CD = 5.5$ cm
- 9) If  $25x^4-30x^3-11x^2+ax-b$  is a perfect square, then find a and b.
- 10) Find the Sum of first 20 terms of the arithmetic series in which 3<sup>rd</sup> term is 7 and 7<sup>th</sup> term is 2 more than three times its 3<sup>rd</sup> term.
- 11) Draw the Graph of  $y = 2x^2-x+3$
- 12)

x	1	3	5	7	8
y	2	6	10	14	16

Draw the graph for the above table and hence find.

- i) The value of y if  $x = 4$
- ii) The Value of x is  $y = 12$