

Vidya Vikas Mandal's

Std : XI Ramacrisna Madeva Salgaocar Higher Secondary School Dur: 1 hr

Date : 25/07/2025

Margao – Goa

Marks : 20

First Formative Exam

Subject : MATHEMATICS AND STATISTICS

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1. The question paper consists of 8 questions .
  2. Question Numbers 1-2 are multiple choice type questions of 1 mark each.
  3. Question Numbers 3-4 are short answer type -I questions of 2 mark each.
  4. Question Numbers 5-6 are short answer type -II questions of 3 mark each
  5. Question Numbers 7-8 are long answer type -I questions of 4 mark each.
  6. There is no overall choice in the paper. However internal choice is provided in one question of 4 marks.
  7. Use of calculators is not permitted.
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1. The complement of the Universal set is - - - - -.

- (A) Empty set
- (B) Universal Set
- (C) set containing zero
- (D) Singleton set

2.  $\cos(\pi + x) =$  - - - - -.

- (A)  $\sin x$
- (B)  $\cos x$
- (C)  $-\sin x$
- (D)  $-\cos x$

3. Convert  $15^\circ 15'$  into radians measure.

4. Let  $A = \{1,2,3,4\}$  and  $B = \{4, 5,6\}$ . Define a relation R from A to B by  $R = \{(x,y) : y = x +3, x \in A \text{ and } y \in B\}$ . Write R , its domain and range.

5. Prove that  $(\sec 2A + 1) \sqrt{\sec^2 A - 1} = \tan 2A$ .

6. If  $f(x) = x^2 - 5x + 4$ ,  $0 \leq x \leq 9$ . Find  $f(2)$  and value of  $x$ , if  $f(x) = 40$

7. If  $\sec x = \sqrt{2}$ ,  $x$  lies in fourth quadrant. Find values of  $\cos x$ ,  $\sin x$  and  $\operatorname{cosec} x$ .

8. In a group of 60 students. 35 play Cricket, 25 play Football and 20 play both Cricket and Football. how many play

(i) atleast one of the two games

(ii) only Football

(iii) neither Cricket nor Football.

OR

In a college ,180 students use WhatsApp, 150 Instagram and 120 use Facebook. 90 use both WhatsApp and Instagram ,70 use both Instagram and Facebook ,60 use both Facebook and WhatsApp and 40 use all three apps. How many students use

(i) atleast one of the three apps

(ii) only Whatsapp

(ii) Instagram and Facebook but not whatsapp.

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