**Sample Paper- 2013   
 Sub : Maths**

**Class-XI**

FULL MARKS: 100 MAX. TIME: 2.5 hrs

Section: A (1 \* 10 = 10)

1. Write the power set of .
2. Find the value of 
3. Solve the following equation, .
4. Solve, .
5. Find the value of the expression .
6. Which number is larger: ****
7. Find the image of (1,2,3) in ZX- Plane.
8. Find the centre and radius of the circle **.**
9. Evaluate: 
10. Find the derivative of  w.r.t .

**Section: B (4 \* 12 = 48)**

1. Let. Let  be the relation of  defined by is exactly divisible by 
2. Write  is roster form. ii) Find the Domain of  iii) Find the Range of 
3. Find the domain and range of.

**OR**

Find the domain and range of .

1. Solve 
2. Prove that: 

**OR**

Evaluate: 

1. Using PMI prove that,  for all .
2. Find the modulus and argument of the complex number 

**OR**

Find the square root of .

1. If all the permutations of the letters of the word ‘INDIA’ are arranged as in a dictionary. Find the 50th and 60th words.
2. A group consists of 4 girls and 7 boys. In how many ways can a team of 5 members be selected if the team has at least one boy and one girl.
3. Find the distance of the point (2, 3) from the line  measured along a line .

**OR**

Find the image of the point P(-8, 12) with respect to the line mirror .

1. Find the coordinates of the foci and the vertices, the eccentricity and the length of the latus rectum of the hyperbola: .
2. Find the ratio in which YZ − plane divides the line segment formed by joining the points (−2, 4, 7) and (−3, 5, 8).
3. 

**OR**

Compute the derivative of , with respect to x from first principle.

**Section: C (6 \* 7 = 42)**

1. Prove that: 

**OR**

If in a ,  then prove that, .

1. Graph the given inequalities and shade the common solution region



1. Find the value of .

**OR**

Find the sum: 

1. In a survey of 60 people, it was found that 25 read news paper ‘H’, 26 read newspaper ‘T’, 26 people read newspaper ‘I’ 9 read both ‘H’ and ‘I’, 11 read both ‘H’ and ‘T’, 8 read ‘T’ and ‘I’, 3 read all three newspapers. Find
2. the number of people who read at least one of the newspapers.
3. the number of people who read exactly one newspaper.
4. P, Q, R shot to hit a target. If P hits it 3 times in 4 trials, Q hits it 2 times in 3 trials and R hits it 4 times in 5 trials, what is the probability that the target is hit by at least two persons?
5. Find the coefficient of  in the expansion of the product 
6. Calculate Mean, Variance and Standard deviation for the following distribution

|  |  |  |  |  |  |  |  |
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| Classes | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 |
| Frequency | 3 | 51 | 122 | 141 | 130 | 51 | 2 |

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