**Guess Paper**

**Class – XI**

**Subject – MATHEMATICS**

Time : 3 Hours Max. Marks : 100

***General Instructions:***

1. All questions are compulsory.
2. The question paper consist of 29 questions divided into three sections A, B and C. Section A comprises of 10 questions of one mark each, section B comprises of 12 questions of four marks each and section C comprises of 07 questions of six marks each.
3. All questions in Section A are to be answered in one word, one sentence or as per the exact requirement of the question.
4. There is no overall choice. However, Internal choice has been provided in 06 questions of four marks 04 and 02 questions of six marks each. You have to attempt only one of the alternatives in all such questions.
5. Use of calculators is not permitted. You may ask for logarithmic tables, if required

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**Section - A**

1. Determine the domain and range of the relation R defined by : R = {(x,x+5): x Є {0,1,2,3,4,5}} .
2. Prove that .
3. If P(n) is the statement : “ is an integral multiple of 7” .
4. Find the real and imaginary parts of .
5. Find the 10th term of the geometric series : 5 + 25 + 125 + …………….
6. Find the equation of the straight line passing through the ( 0 , - 4 ) , (- 6 , 2).
7. Find the values of x so that the point ( 6 , 5 , - 3 ) is at a distance of 13 units from the point ( x , - 7 , 0 ) .
8. Find .
9. Three coins are tossed simultaneously . find the sample space .
10. A and B are two mutually exclusive events for which P(A) = 0.3 , P(B) = p and P(AUB) = 0.5 . find the value of p.

**Section – B**

1. If A = { 1,2,3} B = {4,5,6} and C = {7,8,9} , verify that : .

**OR**

A market reserch group conducted a survey of 1000 consumers and reported that 720 consumers liked producted A and 450 liked product B . what is the least number that must have liked bothe products.

1. Let A ={1,2,3,4,5,6}. Define a relation R from A to A by : R {(x,y) : y = x + 1} . (i) depict this relation by arrow diagram . (ii) write down the domain , co-domain and range of R .
2. Prove that tan A + cot A = 2 cosec 2A and deduce that tan750 + cot 750 = 4 .

**OR**

Solve the following equation :

.

1. Show that the middle term in the expansion of . where n is a positive integer .
2. Show that the points are the vertices of a parallelogram .
3. Evaluate : .

**OR**

It is known for that :

1 + x + x2 + ……………………. + xn-1 ,

Hence find the sum of the series : 1 + 2x + 3x2 + 4x3 + ………………. + ( n – 1 )xn – 2  .

1. Show that

( I ) ( p V q ) V ( p) is a tautology .

( ii ) ( p V q ) is a contradiction .

1. A certain team wins probability 0.7 , lose with probability 0.2 and ties with probability 0.1 . the team plays three games . find the probability that the team wins atleast two of the games , but not lose.

**OR**

 In a single throw of two dice , find the probability that neither a doublet nor a total of 10 will appear .

1. The function ‘t’, which maps temperature in Celsius into temperature in Fahrenheit is defined by . find :

( I ) t (0) ( Ii ) t (28) (iii) t ( - 10) ( iv ) the value of c when t (c ) = 212 .

1. Prove that
2. By the principle of mathematical induction , prove that

12 + 22 + 32 + 42 + ------------------------ n2 =

For each given

1. Solve the equation :

X2

**Section C**

1. Solve : , and show the solution set on the number line .
2. Find the number of arrangements of the letters of the word “ INDEPENDENCE “ . In how many of these arrangements :

( I ) do the words start with P ?

( ii ) Do all the vowels always occur together ?

( iii ) Do the vowels never occur together ?

( iv ) Do the words begin with ‘I’ and end in ‘P’ ?

 **OR**

Two students Anil and Ashima appered in an examination . the probability that Anil will qualify the examination is ‘0.05’ and Ashima will qualify the examination is ‘0.10’ . the probability that both will qualify the examination is ‘0.02’ . find the probability that :

( I ) both Anil and Ashima will not qualify the examination .

( ii ) at least one of them will not qualify the examination .

( iii ) only one of them will not qualify the examination .

1. The second , third and fourth term in the expansion of ( x + a )n are 240 , 720 and 1080 respectively . Find ‘x’ , ‘a’ and ‘n’ .
2. Find the sum of 50 term of a sequence :

7 + 7.7 + 7.77 + 7.777 + 7.7777 -------------------------- .

1. Find the equation of line passing through the intersection of the lines x + 2y – 3 = 0 and 4x – y + 7 = 0 and which is parallel to 5x + 4y – 20 = 0 .

**OR**

If show that .

1. The foci of a hyperbola coincide with the foci of the ellipse , find the equation of the hyperbola if its eccentricity is 2 .
2. calculate the mean and standard deviation for the following data :

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class interval | 0 – 15 | 15 – 30 | 30 – 45 | 45 – 60 | 60 – 75 | 75 – 90 | 90 – 105 | 105 – 120 |
| Frequency  | 12 | 18 | 35 | 42 | 50 | 45 | 20 | 8 |

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Paper Submitted By

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