CLASS XI MATHS

Practice Paper 1

**Section A**

1 If A = {1,2,4}, B = {2,4,5} and C={2,5} then find (A-B) x (B-C).

2 Write the least positive integral value of m for which ($\frac{1+i}{1-i}$) m is real.

3 Write the truth value of the following statement: “Delhi is the capital of India.”

4 Find the image of (-5,0,3) in the XZ plane.

5 Write the negation of the statement “ All primes are odd.”

6 Write the converse of the statement “If you live in Delhi,then you have winter clothes.”

***Section B***

7 Find the domain of the function f(x) = $\frac{x2+2x+1}{x2-8x+12}$ OR

Let f,g : R R be defined by f(x) = x+1 and g(x) = 2x-3.Find f+g,f-g,fg and f/g

8 Prove that sin2A = cos2(A-B) + cos2B – 2cos(A-B)cosAcosB

9 If the sides of a triangle ABC are a=4, b=6 and c=8 then show that 4cosB + 3cosC = 2

10 Find the square root of -15 – 8i or

Express $\frac{1+i}{1-i}$ in the polar form.

11 Solve -5≤ 2-3x/4 ≤ 9

12IF all the letters of the word “AGAIN” be arranged as in a dictionary, then what is the 50th word?

13 Solve the equation tanө + tan2ө + tanө tan2ө = 1

14 One honest person and one dishonest person are standing on a ground represented by the points A(2,3) and B(4,1). Find the equation of line AB. Which value depicts in the question?

15 The cable of a uniformly loaded suspension bridge hangs in the form of a parabola. The roadway which is horizontal and 100m long is supported by vertical wires attached to the cable, the shortest being 6m and longest being 30m. Find the length of a supporting wire attached to the roadway 18m from the middle.

 OR

Find the length of the major and minor axes , coordinates of foci and vertices of the ellipse 3x2 + 2y2 = 6

16 Three vertices of a parallelogram ABCD are (3,-1,2), B(1,2,-4) and C(-1,1,2).Find the coordinates of the fourth vertex.

17 Find the mean deviation from median for the following data

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Xi | 74 | 89 | 42 | 54 | 91 | 94 | 35 |  |
| fi | 20 | 12 | 2 | 4 | 5 | 3 | 4 |  |

 OR

Find the mean deviation from mean for the data.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Xi | 5 | 10 | 15 | 20 | 25 |  |  |  |
| fi | 7 | 4 | 6 | 3 | 5 |  |  |  |

18 In shuffling a pack of 52 playing cards,four are accidently dropped, find the chance that the missing cards should be one from each suit.

19 Find the standard deviation for the data.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Xi | 0-1000 | 1000-2000 | 2000-3000 | 3000-4000 | 4000-5000 | 5000-6000 |
| fi | 18 | 26 | 30 | 12 | 10 | 4 |

**Section C**

20 In a class of 60 students , 30 opted for NCC, 32 opted for NSS and 24 opted for both. Find the number of students

1. Who opted for NCC and NSS
2. Who opted neither NCC nor NSS
3. Write the benefit of NCC training.

21 Find the value of sin180 and cos180 OR

Prove that cos5A = 16cos5A – 20cos3A + 5cosA

22 Using the principle of Mathematical Induction, prove that

13 + 23 + 33 + --------n3 = [n(n+1)]2/2 for all natural numbers

23 Solve the system of inequations graphically

X + y≤ 4, x + 5y≥ 4, 6x + 2y ≥ 8, x ≥ 0, y ≥ 0

24 Evaluate {a2 + √a2 – 1}4 + {a2 – √a2 – 1}4

25 The sum of n terms of two arithmetic progressions are in the ratio (3n +8): (7n+15). Find the ratio of their 12th term.

 OR

The pth term of an AP is a and qth term is b. Prove that the sum of its (p+q) terms is p+q/2{a+b+a-b/p-q}

26 a) Evaluate lim (a+x)2sin(a+x) – a2sina/x

b) Differentiate $\frac{sinx+cosx}{sinx-cosx}$ with respect to x.