FIRST MIDTERM TEST – 2021

X STANDARD

MATHS

TIME : 1:30 Hrs   MAXIMUM MARKS : 50

PART – I

I Choose the Correct Option   **8 X 1 = 8**

1.If n(A X B)=6 And A={1,3},Then n(B) is

A)1   B)2   C)3   4)6

2.If $f(x) = 2x^2, g(x) = \dfrac{1}{3x}, then\ fog\ is$

A) $\dfrac{3}{2x^2}$ B) $\dfrac{2}{3x^2}$ c) $\dfrac{2}{9x^2}$ D) $\dfrac{1}{6x^2}$

3.If f: $A \to B$ **is a bijective function and if n(B)=7 then n(A) is equal to**

A) 7   B) 49   C) 1   4) 14

4.Euclid's division lemma States that for positive integers a and b,exist unique integer q and r such that a=bq+r,where r must satisfy.

A)1<r<b   B)0<r<b   C)0≤r<b   D)0<r≤b

5.The Value of $(1^3 +2^3 +\text{.......}+15^3) -(1+2+3\text{.......}+15)$**is**

A) 14400   B) 14200   C) 14280   4) 14520

6. $\dfrac{3y-3}{y} \div \dfrac{7y-7}{3y^2}$ **is**

A) $\dfrac{9y}{7}$ B) $\dfrac{9y^2}{(21y-21)}$ C) $\dfrac{21y^2-42y+21}{3y^2}$ D) $\dfrac{7(y^2-2y+1)}{y^2}$

7.The Square root of $\dfrac{256x^8y^4z^{10}}{25x^6y^6z^6}$ **is equal to**

A)$\dfrac{16}{5}\left|\dfrac{x^2z^4}{y^2}\right|$ B) $16\left|\dfrac{y^2}{x^2z^4}\right|$ C) $\dfrac{16}{5}\left|\dfrac{y}{xz^2}\right|$ D) $\dfrac{16}{5}\left|\dfrac{xz^2}{y}\right|$

8.The solution of $(2x-1)^2 = 9$ is equal to

A) -1   B) 2   C) -1,2   4) None of these

PART –II

II   Answer any Seven Question .Question number 17 is Compulsory   7 X 2 = 14

9. Let A ={1,2,3} and B ={x/x is a Prime number less than 10} Find A X B and B X A

10. A Relation R is given by the set {(x,y)/y=x+3.xε{0,1,2,3,4,5} Determine its domain and range.

11.Find fog and gof when f(x)=2x+1 and g(x)=$x^2 - 2$.

12.Find the first four terms of sequence $a_n = n^3 - 2$.

13.Find the number of terms in the A.P 3,6,9,12,……,111.

14.Simplity : $\dfrac{x+2}{x+3}$ + $\dfrac{x-1}{x-2}$

15.Find the Square root of $\dfrac{144\, a^8\, b^{12} c^{16}}{81\, f^{12}\, g^4\, h^{14}}$

16.Find the Sum and Product of the roots for the quandratic equation $x^2 + 8x - 65 = 0$.

17.If A = {-2,-1,0,1,2,} and a $f : A \to B$ is an onto function defined by f(x)= $x^2 + x + 1$ then find B

(OR)

Find the 19th term of an A.P -11,-15,-19,….

PART-III

III Answer any four Question , Question number 23 is Compulsory   **4 x 5 = 20**

18.Let f: $A \to B$ **be a function defined by f(x)=** $\frac{x}{2} - 1$ **Where A = {2,4,6,10,12} , B={0,1,2,4,5,9} Represent f by**

i)Set of ordered Pairs   ii)a Table   iii)an arrow diagram   iv)a graph

19Let A={xεW/x<2},B={xεN/1<X≤4} and C ={3,5} Verify A X (B ∩ C) = (A X B)   ∩ (A X C)

20.Find the Sum to n terms of the series 5+55+555+……..

21.The Sum of first n,2n and 3n terms of an A.P are S_1, S_2 **and** S_3 **respectively.prove that** S_3 = 3 ($S_2 - S_1$).

22.Find the square root of $x^4 - 12x^3 + 42x^2 - 36x + 9$

23. If f(x) =2x+3,g(x) = 1-2x, and h(x) = 3x Prove the fo(goh) = (fog) oh.

(or)

Find the G.C.D of the Polynomial of $x^4 + 3x^3 - x - 3,\ x^3 + x^2 - 5x + 3.$

PART - IV

IV Answer any one of the following   **8 x 1 = 8**

24.Draw the graph for the quadratic equation $x^2 - 9x + 20 = 0$ **and State the nature of its solution**

(or)

Construct a triangle Similar to a given triangle PQR With its sides equal to $\frac{3}{5}$ **of the corresponding Sides of triangle PQR (Scale factor** $\frac{3}{5}$ **< 1).**