Shivraj PABSON

First Terminal Examination 2081

Time: 3hrs **F:M=75**

Class:- 9 **Sub:- O.P.T - Maths** **P:M=**

Attempts all the questions:

Group A [5x2=10]

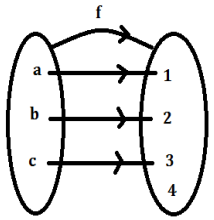
1. a) Defind ordered pair with an example .

b) If (x+2,4)=(6,4) what is the value of a ?

2.a) If AxB = {(a,1) , (a,2) , (b,1), (b,2) } list out the element of set A.

b) Define function .

3.a) From the given figure , find the co-domain of the function f.



b) Find the figure degree of the polynomial

$9x^5 - 4x^3 + 3x^2 - 7x + 15$

4.a) Define sequence with an example .

b) Find the next term of the sequence x, $-x^2$, x^3,$-x^4$,……

5.a) Find the limit of the sequence 02.,0.02,0.002,0.0002……..

b) Find the 8th term of the sequence 1.9,1.99,1.999……..

Group B (4x4=16)

6.a) for what values of p and q , (2p-7,4q-8) and (p+8,2q+4) are equal to each other.

b) If A= {1,2,3} and B={ a,b,c} find AxB .

7.a) If the function f(x) =8x-9 and domain D={4,5} , Find its range .

b) If f(x) = $2x^3 - 7$ find the value of f(-2) .

8.a) If p(x) = (a-2) x^2 + (b+1) x+ (c+2) , q(x) = $5x^2 + 6x + 8$ and $p(x) = q(x)$ Find the values of a and b.

b) If p(x) =$3x^3 + 2x^2 - 5$ and q(x) = $2x^3 - 3x^2 + 7x + 7$, find the sum of p(x) and q(x) .

9.a) If f(x) =$2x^3 - 4x + 5$ and $g(x) = 2x^2 - 2x + 3$ Find the product of f(x) and g(x) .

b) Find the 15 term of the sequence 3,6,9,12……

Group c 11x3=33

10. If A= {p,q} and B= {2,4,6} find AxB and BxA by mapping diagram.

11. If P= $\{x: 6 \leq x \leq 8\}$ and $Q = \{x: 2 < x \leq 4\}$ Find PxQ.

12. Write the difference between relation and function.

13. If f(x) =$2x^2 - 4x + 5$ find the value of f(7) + f(9) .

14. If f(x) =2x-5 show that $\frac{f(x+h)-f(x)}{h}$ =2

15. if P(x) = $11x^2 - 5x + 7$, $q(x) = 13x^2 + 5x - 9$ and $r(x) = 3x^2 - 6x + 1$ then find p(x) +q(x) -r(x) .

16. Find the quotient and remainder of the following condition p(x) ÷q(x) where p(x) =$8x^3$+$2x^2 - 6x + 5$ and $q(x) = x - 2$

17. A sequence of number is given as 6,11,18,38…….find ,

i) nth term

ii) next two terms

iii) value of 11th terms

18. Find the sum of $\sum_{n=2}^{9}(2n^2 - n + 5)$

19. if the function f(x) = $\frac{x^2-4}{x-2}$

i) Find the values of f(x) at x=1.9, 1.09,1.009

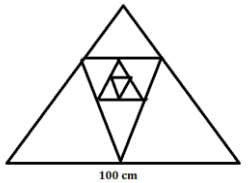
ii) Find the values of f(x) at x=2.01, 2.0011

iii) What is the limit value of the function f(x) .

20. Each side of an equilateral triangle is 100cm . A second equilateral triangle is inscribed by joining the mid -points of the sides successively. This process is continued infinitely many times.

a) Find the length of 3rd sides .

b) What is the limit of area of triangle ?



c) What is the limit of perimeter of triangle ?

Group D 4x4=16

21. If f(x) =2x+3; R= {5,7,9} Find its domain and represent the function in

a) Tabular form b) Mapping diagram

22. If f(x+2) = f(x) +f(2) then prove that : f(0) =0 and f(-2) =-f(2)

23. if f(x)= ax+b,f(-3) =-4 and f(3) =2 , find the values of a and b.

24. If f(x) =$\frac{2}{5} - \frac{1}{2}x + \frac{8}{9}x^2 - \frac{4}{5}x^3$, $g(x) = \frac{1}{3}x^3 - \frac{1}{3}x^2 + \frac{3}{4}x - \frac{8}{5}$ and $h(x) = \frac{5}{9}x^2 + \frac{1}{4}x - \frac{6}{5} - \frac{7}{15}x^3$ then prove that f(x) +g(x) -h(x) is zero polynomial .

The End