INEQUALITY(PART 1 –ASSINGMENT)

1) Solve for all real values of x, if $\sqrt{(9x - x^2)} > 0$
a) x <0 b) 0< x < 9 c) x >9 c) x > 20

2) $(1 + a^2)/ (a^2 - 5a + 6) < 0$
a) a < 2 b)a> 3 c)2< a < 3 d)Both a and b

3) $(x^2 - 3x + 24)/(x^2 -3x+3) < 4$, Solve for range of values x can assume
a) x < -1 b) 4< x<8 c) 4< x < 6 d) None of these

4) Solve the inequality: $x^3 – 5x^2 + 8x – 4 > 0$
a) (2, infinity) b) (1, 2) U (2, infinity) c) (-infinity , 1) U (2, infinity) d) (-infinity, 1)

5) How many integral values of n will satisfy $5/3 < (2n+1)/n < 13/7$

6) $\log_{1/3} (3x-1)/(x+2)$ is less than unity then x must lie in the interval
a) (-infinity, -2) U (5/8, infinity) b) (-2,5/8) c) (-infinity , -2) U (1/3, 5/8) d) (-2, 1/3)

7) Find the minimum value of the expression
|x – 1| + |x – 4| + |x – 7| + |x – 10| + |x – 13| + |x – 16|.

8) |x – 1| + |x – 4| + |x – 7| + |x – 10| + |x – 13| ≥ 45,
a) x ≤ -2 or x ≥ 18
b) x ≤ -5 or x ≥ 14
c) x ≤ –2 or x ≥ 16
d) x ≤ –3 or x ≥ 6

9) At what value of x, following expression will have minimum value ?
|x - 1| + |2x - 1| + |3x - 1| + ... + |100x - 1|

10) $3/(x-2) < 1$, Find Range of x

11) Let a and b be the maximum and minimum values of x respectively satisfying the inequality |x+31|+|x−34| ≤ 137, then what is a−b.

12) Find the minimum value of the expression
|x – 1| + |x – 4| + |x – 7| + |x – 10| + |x – 13|

13) How many solutions are possible for the inequality |x-1| + |x-6| < 5

14) Find the number of integral values between -5 and 50 satisfying the inequality
(|a| - 2) (a +5) < 0

15) How many integral values of x can satisfy the inequality?
|x| + |x-1| +|x-2|+|x-3|+|x-4| < 54

16) The number of integral values of x, for which the inequality || x - 3 | - 4 | = 2

17) Solve $(1 + x^2)/(x^2 - 5x + 6) < 0$
a) x < 2 b) x>3 c) 2 < x < 3 d) both a and b

18) If ab <= 28, bc <= 14, ac <= 8, then what is the max value of the product of a, b and c?
a) 196 b) 28 c) 56 b) 112

19) $(x^2+6x-7)/(x^2+1) <= 2$, Find range of x

20) Find range of x for which $(x^2+x+1)/|x+1| >0$

21) $x^2 - 7x + 12 < |x - 4|$

22) Solve the in equation $(x^2 + 3x + 1) (x^2+3x - 3) \geq 5$

23) $(x^4-3x^3+2x^2)/(x^2-x-30)>=0$
(A) $(-\infty, -5) \cup (1, 2) \cup (6, \infty) \cup \{0\}$
(B) $(-\infty, -5) \cup [1, 2] \cup (6, \infty) \cup \{0\}$
(C) $(-\infty, -5] \cup [1, 2] \cup [6, \infty) \cup \{0\}$
(D) none of these

24) If $(x + 1)^2$ is greater than $5x - 1$ & less than $7x - 3$ then the integral value of x is equal to
(a) 1
(b) 2
(c) 3
(d) 4

25) The set of real ' x ' satisfying, $||x - 1| - 1| \leq 1$ is
(A) [0, 2]
(B) [– 1, 3]
(C) [– 1, 1]
(D) [1, 3]

ANSWER KEY

1) B

2) C

3) D

4) B

5) 3 values

6) A

7) 27

8) C

9) x=1/71

10) x>5 or x < 2

11) 137

12) 18

13) 0

14) 3

15) 21

16) 4

17) c

18) 56

19) R

20) (-inf , -1) U (-1,inf)

21) (2,4)

22) (– inf, – 4] U [–2, –1] U [1, inf)

23) B

24) C

25) B