ALGEBRA ASSIGNMENT 4- (Quadratic 2)

1) Find number of real solutions of $(9/10)^x = -3+x-x^2$

a) **1** **b)2** **c) 0** **d) not**

2) If the sum of the 6th power of the quadratic equation $x^2-x-a=0$ is 19721 and the sum of the 4th powers of the roots is 881, find the sum of the 7th powers of the roots.

(a) 60,740 (b) 64,720 (c) 61,741 (d) 62,826

3) Number of real roots of $x^4+2x^3+3x^2+2x+1=0$

4) If a, 3, b are in AP and the roots of the quadratic equation ax^2-3x+b are real and positive, which of the following can be the value of the common difference?

a) 1.8 **b) 2.8** **c) 3.8** **d)4.8**

5) Consider the equation $x^2+(k-4)x+(k+4)=0$. What is the least value of the sum of the squares of the roots of the equation?

a) **-17** **b) -8** **c) -32** **d) None of these**

6) The value of a quadratic function f(x) is a negative for all values of x, except for x = 2. If f(x = 0) = –10, then find the value of f(x = –2).

a. – 40 **b. – 80** **c. – 60** **d. Data Inconsistent**

7) The number of roots of the quadratic equation $8 \sec^2 \theta - 6 \sec \theta + 1 = 0$ is.

a)Infinite **b)2** **c)1** **d)0**

8) F(x) is a quadratic function which attains its max value of 3 at x=1 the value of function at x=0 is 1.

what is the value of f(x) at x=10

9) If roots of equation $x^4-8x^3+bx^2+cx+16=0$ are real and positive

a) b=c=8 **b) b=-20 c=-24 c) b=2 c=16** **d)None of These**

10) If sum of the roots and product of the roots of a quadratic equation S are in ratio 2:1 then which of the following is true..?

a) f(s) < 0 b) b^2-4ac < 0 c) S is perfect square d) None of These

11) If a, b & c are roots of equation $x^3 - 6x^2 + 10x - 1 = 0$, then $a^3 + b^3 + c^3$

a. 6 b. 16 c. 39 d. None of These

12) The quadratic equation, one of the roots of which is the y-coordinate of the point of intersection of the lines $3x + 4y = 7$ and $x + y = 9$, the other root being the greater of the two roots of the equation $x^2 – 5x + 6 = 0$ is:

1) $x^2 + 17x – 60 = 0$ 2) $x^2 – 17x – 60 = 0$

3) $x^2 + 15x – 42 = 0$ 4) $x^2 – 15x + 36 = 0$

13) a ,b ,c are roots of $x^3+x+1=0$ .Find $a^3+b^3+c^3$

14) Find number of real roots of $e^x = -3+x-x^2$

15) If $ax^2 - bx + 5 = 0$ does not have 2 distinct real roots, then find the minimum value of $5a + b$

16) If a ,b real and a doesn't equal to zero and the quadratic equation $ax^2-bx+1=0$ has imaginary roots then a+b+1 is:

(a) positive (b) negative (c) zero (d) dependent on the sign of b.

17) $x^4 + bx^3 + cx^2 + dx + 9 = 0$ has 4 real positive roots. What is the minimum value of c

18) Given that $|k| < 15$, how many integer values can k take if the equation $x^2 – 6|x| + k = 0$ has exactly 2 real roots?

(a) 15 (b) 14 (c) 16 (d) 13

19) The equation $2x^2 + 2(p + 1)x + p = 0$,where p is real, always has roots that are

a)Equal b)Equal in magnitude but opposite in sign c)Irrational d)Real

20) number of real roots of $A^2/x+ B^2/(x-1)=1$ where A and B are real number not equal to zero simultaneously

a) 1 b) 2 c) 1 or 2 d) none of these

21) P and Q belong to the set {2,4,6,8} and are not necessarily unique. How many equations of the form $x^2 + Px + Q = 0$ have real roots?

a) 6 **b) 8** **c) 9** **d)10**

22) Number of real roots of $x^8 + x^4 = 0$

a) 8 **b) 4** **3) 2** **d)1**

23) let p and q are roots of $x^2-(a-2)x-a-1=0$ find minimum value of p^2+q^2

a) 0 **b) 3** **c) 4** **d) 5**

24) If one root of $x^2+kx-8=0$ is square of the other then find value of k

a)2 **b) 8** **c) -8** **d) -2**

25)find number of real roots of $(6-x)^4 +(8-x)^4 =16$

a) 0 **b) 2** **c) 4** **d) not**

Answer Keys

1	c
2	c
3	0
4	b
5	a
6	a
7	d
8	-159
9	d
10	d
11	c
12	a
13	-3
14	0
15	-1
16	a
17	18
18	a
19	d
20	c
21	d
22	b
23	d
24	d
25	b