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1) Equation of $(x+1)^2 - x^2 = 0$ has number of real roots equal to:
a) 1
b) 2
c) 3
d) 4

2) The roots of $100x^2 - 20x + 1 = 0$ is:
a) 1/20 and 1/20
b) 1/10 and 1/20
c) 1/10 and 1/10
d) None of the above

3) The sum of two numbers is 27 and product is 182. The numbers are:
a) 12 and 13
b) 13 and 14
c) 12 and 15
d) 13 and 24

4) If ½ is a root of the quadratic equation $x^2 - mx - 5/4 = 0$, then value of m is:
a) 2
b) -2
c) -3
d) 3

5) The altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, the other two sides of the triangle are equal to:
a) Base=10cm and Altitude=5cm
b) Base=12cm and Altitude=5cm
c) Base=14cm and Altitude=10cm
d) Base=12cm and Altitude=10cm

6) The roots of quadratic equation $2x^2 + x + 4 = 0$ are:
a) Positive and negative
b) Both Positive
c) Both Negative
d) No real roots

7) The value of $\sqrt{6 + \sqrt{6 + \sqrt{6}\ldots\ldots}}$ is
a) 4
b) 3
c) 3.5
d) -3

8) The sum of the reciprocals of Rehman's ages 3 years ago and 5 years from now is 1/3. The present age of Rehman is:
a) 7
b) 10
c) 5
d) 6

9) A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train.
a) 30 km/hr
b) 40 km/hr
c) 50 km/hr
d) 60 km/hr

10) If one root of equation $4x^2 - 2x + k - 4 = 0$ is reciprocal of the other. The value of k is:
a) -8
b) 8
c) -4
d) 4

11) The maximum number of roots for a quadratic equation is equal to
a) 1
b) 2
c) 3
d) 4

12) The quadratic equation $x^2 + 7x - 60$ has

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a) two equal roots
b) two real and unequal roots
c) no real roots
d) two equal complex roots

13) The product of two consecutive positive integers is 360. To find the integers, this can be represented in the form of quadratic equation as
a) x^2 + x + 360 = 0
b) x^2 + x − 360 = 0
c) $2x^2$ + x − 360
d) x^2 − 2x − 360 = 0

14) A quadratic equation ax^2 + bx + c = 0 has no real roots, if
a) b^2 − 4ac > 0
b) b^2 − 4ac = 0
c) b^2 − 4ac < 0
d) b^2 − ac < 0

15) 300 is the result of two consecutive integral multiples of 5. Find out the numbers.
a) 10,15   b) 15, 20
c) 30, 35   d) 25, 30

16) Rohini could have gotten 10 additional marks out of a possible 30 on her math test, which would have been the square of her actual score 9 times. How many marks did she receive on the exam?

a) 16   b) 18
c) 15   d) 14

17) The sum of two numbers is 27 and product is 182. The numbers are:
a)12 and 13   b)13 and 14
c)12 and 15   d)13 and 24

18) If one the roots of the equation px^2 + qx + r = 0 is three times the other, then which one of the following relations is correct ?
a) p = q + r   b) q^2 = 24 pr
c) p + q + r = 1   d) $3q^2$ = 16 pr

19) The expression $2x^3$+x^2+ - 2x - 1 is divisible by.
a) x − 2   b) 2x + 1
c) 2x − 1   d) x + 2

Directions : 20
In each of these questions, two equations numbered I and II are given. You have to solve both the equations and −
A.if x < y
B.if x ≤. y
C.if x > y
D.if x ≥ y
20) if x = y or the relationship cannot be established.
I. x^2 + 7x + 12 = 0
II. y^2 + 6y + 8 = 0

a) if x > y

b) if x ≤ y

c) if x ≥ y

d) if x = y or the relationship cannot be established.

21) Aman and Alok attempted to solve a quadratic equation. Aman made a mistake in writing down the constant term and ended up in roots (4, 3). Alok made a mistake in writing down the coefficient of x to get roots (3, 2).The correct roots of the equation are

a) 4, 3   b) 6, 1

c) -6, -1   d) -4, -3

Directions :22

In the following questions, two equations numbered I and II are given. You have to solve both the equations and –

A. if x < y

B. if x > y

C. if x ≤ y

D. if x ≥ y

E. if x = y

22) I. $8x^2 + 6x = 5$

II. $12y^2 - 22y + 8 = 0$

a) If x ≤ y   b) If x > y

c) If x ≥ y   d) If x < y

23) If the roots of the equation a(b–c) x^2 + b (c - a) x + c (a - b) = 0 are equal, then which one of the following is correct?

a) $\frac{2}{b} = \frac{1}{a} + \frac{1}{c}$ b) $b^2 = ac$

c) $\frac{1}{b} = \frac{1}{a} + \frac{1}{c}$ d) 2b = a + c

24) If the equation $(a^2+b^2) x^2 - 2(ac+bd)x + (c^2+d^2) = 0$ has equal roots, then which one of the following is correct?

a) $a^2+c^2=b^2+d^2$ b) ad = bc

c) ac = bd   d) ab = cd

25) The difference in the roots of the equation $2x^2 - 11x + 5 = 0$ is

a) 3.5   b) 4

c) 3   d) 4.5

26) If (b- 6) is one of the quadratic equation $x^2 - 6x + b = 0$, where b is an integer, then what is the maximum value of b^2 ?

a) 64   b) 49

c) 81   d) 36

27) Which of the following is not a quadratic equation

a) x² + 3x–5 = 0

b) x² + x3 + 2 = 0

c) 3 + x + x² = 0

d) x²–9=0

28) The quadratic equation has degree

a) 0   b) 1
c) 2   d) 3

29) The cubic equation has degree
a) 1   b) 2
c) 3   d) 4

30) A bi-quadratic equation has degree
a) 1   b) 2
c) 3   d) 4

31) The polynomial equation x (x + 1) + 8 = (x + 2) {x–2) is
a) linear equation
b) quadratic equation
c) cubic equation
d) bi-quadraticequation

32) The equation $(x–2)^2$ + 1 = 2x–3 is a
a) linear equation
b) quadratic equation
c) cubic equation
d) bi-quadratic equation

33) The quadratic equation whose roots are 1 and
a) 2x² + x–1 = 0
b) 2x²–x–1 = 0
c) 2x² + x + 1 = 0
d) 2x²–x + 1 = 0

34) Find the roots of quadratic equation: $3x^2 - 7x - 6 = 0$?

a) -6, 3   b) 3, -2/3
c) -5, 2   d) -9, 2

35) Find the roots of quadratic equation: $x^2 + x - 42 = 0$?
a) -6, 7   b) -8, 7
c) 14, -3   d) -7, 6

36) Find the roots of quadratic equation: $2x^2 + 5x + 2 = 0$?
a) -2, -1/2   b) 4, -1
c) 4, 1   d) -2, 5/2

37) I. $a^2 - 13a + 42 = 0$,
II. $b^2 - 15b + 56 = 0$ to solve both the equations to find the values of a and b?
a) If a > b   b) If a ≥ b
c) If a < b   d) If a ≤ b.

38) I. $a^3 - 988 = 343$,
II. $b^2 - 72 = 49$ to solve both the equations to find the values of a and b?
a) If a > b   b) If a ≥ b
c) If a < b   d) If a ≤ b

39) I. $9a^2$ + 18a + 5 = 0,
II. $2b^2$ + 13b + 20 = 0 to solve both the equations to find the values of a and b?
a) If a > b   b) If a ≥ b
c) If a < b   d) If a ≤ b

40) I. x^2 + 11x + 30 = 0,

II. $y^2 + 15y + 56 = 0$ to solve both the equations to find the values of x and y?

a) If x < y

b) If x > y

c) If x ≤ y

d) If x ≥ y