ADARSHA VIDYALAYA(RMSA), KHANAGAON, GAKAK

MATHEMATICS

TIME: 1-hour **MARKS: 40**

1. In an arithmetic progression, if $a_4 = 8$ and $a = 2$, then its common difference is

   (a)6 (b)4 (c)2 (d)10

2. In an= 2n+3 then the value of S_3 is

   (a)15 (b)17 (c) 21 (d)24

3. The sum of an AP 1+3+5+ ..... +25 is equal to

   (a)625 (b)169 (c)196 (d)144

4. The first three terms of an Arithmetic progression with first term 1 and common Difference 2 is

   (a)-1, 1, 3 (b)1, -1, -3 (c)0, 1, 3 (d)-3, 1, -1

5. The sum of the first 'n' odd natural numbers is 196, the value of 'n' is

   (a)12 (b)21 (c)14 (d)41

6. The solutions of the equation 2x–y–5=0 are:

   (a) x =-2, y =1 (b) x = 2, y = 1

   (c) x = – 1, y =1 (d) x= - 2, y = 1

7. The sum of digit of a two digit number is 9. Also, 9 times this number is twice the number obtained by reversing the order of the digit. The number is:

   (a) 20 (b) 16 (c) 18 (d) None of these

8. The system of equations kx –y =2 and 6x–2y =3 has a unique solution when:

   (a) k = 0 (b) k ≠ 0 (c) k = 3 (d) k ≠ 3

9. A boat can row 1km with stream in 10minutes and 1km against the stream in 20minutes. The speed of the boat in still water is:

   (a) 1.5km/hr (b) 3km/hr (c) 3.4km/hr (d) 4.5km/hr

10. The general form of a quadratic equation is:

    (a) $ax^2 + bx + c$ (b) $ax^2 + bx + c = 0$

(c) $ax^2 + b$ (d) $ax^2 + bx + c = 0, a \neq 0,$

11. The number of possible solutions of a quadratic equation are:

(a) exactly two (b) at most two

(c) at least two (d) None of these

12. If the roots of a quadratic equation are equal, then the discriminant is:

(a) 1 (b) 0 (c) greater than 0 (d) less than 0

13. The roots of $3x^2 - 7x + 4 = 0$ are:

(a) rationals (b) irrationals

(c) positive integers (d) negative integers

14. The angle of elevation of the top of a tower from two points at distances a and b from the base and on the same straight line with it are complimentary. The height of the tower is:

(a) ab (b) $\sqrt{ab}$ (c) $(ab)^2$ (d) a/b

15. Value of $\sin 30^0 + \cos 60^0$ is

(a) $\mathbf{1/2}$ (b) $\mathbf{3/2}$ (c) $\mathbf{1/4}$ (d) $\mathbf{1}$

16. A tower stands vertically on the ground, form a point on the ground, which is 15m away from the foot of the tower, the angle of elevation of the top of the tower is found to be 60°. The height of tower is:

(a) 3m (b) $15\sqrt{3}$ m (c) 15m (d) $3\sqrt{15}$ m

17. In right angled triangle ABC, right angled at C, if tan A =1, then the value of 2sinAcosA is

(a) 0 (b) 1 (c) -1 (d) 2

18. $7\sin^2 A + 3\cos^2 A = 4$, then

(a) tanA= $1/\sqrt{2}$ (b) tanA=½

(c) tanA=1/3 (d) tanA= $1/\sqrt{3}$

19. P is a point on X-axis at a distance of 3units from Y-axis to its left. The coordinates of P are:

(a) (3, 0) (b) (0, 3) (c) (–3, 0) (d) (0, –3)

20. The coordinates of the point where line $\frac{x}{a} + \frac{y}{b} = 7$ intersects Y-axis are:

(a) (a, 0) (b) (0, b) (c) (0, 7b) (d) (7a, 0)

21. The area of the triangle OAB, the coordinates of the points A(4, 0), B(0, –7) and O is origin, is:

(a) 11sq.units (b) 18sq.units

(c) 28sq.units (d) None of these

22. The line $\frac{x}{2} + \frac{y}{4} = 1$intersects the axes at P and Q, the coordinates of the midpoint of PQ are:

(a) (1, 2) (b) (2, 0) (c) (0, 4) (d) (2, 1)

25. The mean of x, x+1, x+2, x+3, x+4, x+5 and x+6 is:

(a) x (b) x+4 (c) 3 (d) x+3

26. The median of 2, 3, 2, 5, 6, 9, 10, 12, 16, 18 and 20 is:

(a) 9 (b) 10 (c) 20 (d) 9.5

27. Mode of 1, 0, 2, 2, 3, 1, 4, 5, 1, 0 is:

(a) 5 (b) 0 (c) 2 (d) 1

28. If the mode of 2, 3, 5, 4, 2, 6, 3, 5, 5, 2 and x is 2 then, the value of x is:

(a) 4 (b) 3 (c) 2 (d) 5

29. A line passing through 2 points on the circumference of a circle is

(a) Chord (b) Secant (c) Tangent (d) Radius

30. The distance between two parallel tangents in a circle of radius 3.5cm is ---------- cm.

(a) 7 (b) 14 (c) 3.5 (d) 1.75

31. The angle between two radii of circle is 1300 then the angle between the tangents at the end points of radii at their point of intersection is

(a) 900 (b) 500 (c) 700 (d) 400

32. In a right triangle square of the _____ is equal to the sum of the squares of other two sides.

(a) Perpendicular (b) sum (c) Hypotenuse (d) Opposite

33. If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, then the other two sides are divided in the

(a) same point (b) same ratio

(c) same distance (d) same length

34. All the equilateral triangles are _____.

(a) Similar (b) Congruent (c) Both (a) and (b) (d) None

35. A triangle PQR is similar to another triangle ABC such that ar(PQR)=4ar(ABC). The ratio of their perimeters is given as:

(a) 2:1 (b) 1:2 (c) 4:1 (d) None of these

36. If a right circular cone of vertical height 12cm has a volume of 616cm3 , then the radius of its base is:

(a) 6cm (b) 7cm (c) 8cm (d) 9cm

37. If all the sides of a cube are doubled then its area will become:

(a) 2 times (b) 3 times (c) 4 times (d) 8 times

38. Three spheres of radii 3cm, 4cm, and 5cm are melted to form a solid sphere of radius:

(a) 5cm (b) 6.5cm (c) 7cm (d) 6cm

39. A hall 40m long, 15m broad, is to be paved with stones, each measuring 60 cm by 50cm. The number of stones required is:

(a) 1000 (b) 2000 (c) 30000 (d) None of these

40. A solid formed on revolving a right angled triangle about its height is

(a) Cylinder (b) Sphere (c) Right circular cone (d) Frustum of cone