SAMPLE PAPER/MODEL TEST PAPER

SUBJECT – MATH CBSE 10TH SA 2 2011

Section – A

1. If the radius of a circle is diminished by 10%, then its area is diminished by:

(a) 20 % (b) 19 % (c) 36% (d) 10 %

2. The volumes of two spheres one is the ratio 64: 27. The ratio of their surface areas is:

(a) 1 : 2 (b) 9 : 16 (c) 16 : 9 (d) 2 : 3

3. The number of quadratic equation having real roots and which do not change by squaring their roots is:

(a) 2 (b) 1 (c) 3 (d) 4

4. If points (1, 2), (-5, 6) and (α, 2) are collinear, then α =

(a) 7 (b) 2 (c) -2 (d) -3

5. The area of the in circle of an equilateral triangle of sides 42 cm is:

(a) 321 cm^2 (b) 924 cm^2 (c) 472 cm^2 (d) $22\sqrt{3}$ cm^2

6. If four sides of a quadrilateral ABCD are tangential to a circle, then:

(a) AB +CD = BC + AD (b) AC + AD+ = BC +DB

(c) AC + AD = AC + CD (d) AB + CD = AC + BC

7. The length of the tangent drawn from a point 8 cm away from the centre of a circle radius 6 cm is:

(a) 10 cm (b) 5 cm (c) $\sqrt{7}$ cm (d) $2\sqrt{7}$ cm

8. The number of quadratic equations having real roots and which do not change by squaring their roots is:

(a) 1 (b) 2 (c) 3 (d) 4

9. If 7^{th} terms of an A.P. be 34 and 64, respectively, then its 18^{th} term is:

(a) 88 (b) 89 (c) 87 (d) 90

10. The ratio of the length of a rod and its shadow is 1: $\sqrt{3}$. The angle of elevation of the sum is:

(a) 30 degree (b) 60 degree (c) 90 degree (d) 45 degree

Section – B

11. Find the area of a quadrant of a circle whose circumference is 22 is.

12. A pair of dice thrown once. Find the probability of getting the same number of each dice.

13. Find the circumference and area of a circle of radius 8.4 cm.

14. Two cube each of 10n cm edge are joined end to end. Find the surface area of resulting cuboid.

15. If the points A (4, 3) and B (x, 5) are on the circle with the centre O (2, 3), find the value of x.

16. Find the common difference and write the next three terms of the A.P. 3, -2, -7, -12.

17. Find the value of $(\alpha - 12)\ x^2 + 2\ (\alpha - 12)\ x + 2 = 0$ has equal roots.

18. A point P is 13 cm from the centre of the circle. The length of the tangent drawn to the circle is 12.

Section – C

19. An observer 1.5 m tall is 28.5 m away from a tower. The angle of elevation of the top of the tower from her eyes is 45 degree. What is the height of the tower?

20. The base radius and height of a right of a right circular solid cone are 2 cm and 8 cm respectively. It is melted and recast into spheres of diameter 2 cm each. Find the number of spheres so formed.

21. One card is drawn from a well shuffeled deck of 52 playing cards. Find the probability of getting:

(a) a black king or a red queen

(b) a non – face card

22. The co – ordinates of the mid – point of the line joining the points (2p +1, 4) and

(5, q – 1) are (2p, q), Find the values of p and q.

23. A chord AB of a circle of radius 10 cm makes a right angle at the centre of the circle. Find the area of the major and minor segments. (Take PI = 3.14)

24. In an A.P. the first term is 8, n^{th} term is 33 and sum to first n terms is 123, find n and d.

25. Construct a triangle ABC in which CA = 6 cm, AB = 5 cm and angle BAC = 45 degree then construct a triangle similar to the given triangle whose are 6/5 of the corresponding side of the triangle.

26. The vertices of a triangle are (-1, 3), (1, 1); and (5, 1). Find the length of medians through vertices (-1, 3) and (5, 1).

27. The perimeter of an isosceles triangle is 32 cm. If each equal side is 5/6 times the base. Find the area of the triangle.

28. The sum of 5^{th} and 9^{th} term of an A.P. is 72 and the sum of 7^{th} and 12^{th} terms is 97.

Find the A.P.

Section – D

29. A gulabjamun when completely ready for eating contains sugar syrup up to about 30 % of its volume. Find approximately how much syrup would be found is 45 gulabjamuns shaped like a cylinder with two hemispherical ends, if the complete length of each of gulabjamun is 5cm and its diameter is 2.8 cm.

30. Two tangents TP or TQ are drawn to a circle with centre O from an external point T.

Prove that

$\angle PTQ = 2\angle OPQ$

31. The sum of n, 2n, 3n terms of an AP are S_1, S_2, S_3 respectively. Prove that

$S_3 = 3 (S2 - S_1)$.

32. The angle of depression of the top and bottom of an 8 m tall building from the top of a multistoreyed building are 30 degree and 45 degree respectively. Find the height of the multi storeyed building and the distance between the two buildings.

33. In a flight of 600 km, a air craft slowed donor due to bad weather, its average speed of the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. Find the duration of flight.

34. A chord of circle of radius 12 cm subtends an angle of 120 degree at the centre. Find the area of the corresponding segment of circle. (PI = 3.14 and $\sqrt{3} = 1.73$)