SSLC MODEL QUESTION PAPER -2022

Subject : Mathematics

Time : 3 hours max. Marks : 100

I CHOOSE THE CORRECT ANSWER 14X1=1

1. n(AXB) = 6,A={1,3}, then n(B) =----------
a) 1 b)2 c)3 d)6

2. GCD of 65 and 117 is 65m -117then the value of m is —----------
a)4 b)2 c)1 d)3

3. The number of terms of an arithmetic progression is 31.Its 16th term is m then the sum of all terms of the AP is—---------.
a) 16m b) 62m c)31m d)31/2 m

4. The solution of the system x+y -3z = -6, -7y +7z = 7, 3x = 9 is —----------
a) x = -1, y=2,z =3 b) x= 1, y= -2, z= 3
c) x=1, y=2,z=3 d) x=-1, y= -2 , z= 3

5.The graph of linear polynomial expression is —----------.
a)Parabola b)hyperbola c) circle d) straight line

6.The perimeters of two similar triangles ABC and PQR are 36cm and 24 cm respectively .If PQ =10cm then the length of AB is—----------.

a) 6 .67 cm b) 66.67cm c) 10/ 3cm d) 15cm

7.The slope of the line perpendicular to the line joining the points (0,0) and (-8,8) is —---------.
a)-1 b) 1 c) ⅓ d) -8

8. The area of the triangle formed by the points (-5,0) ,(0,-5), (5,0) is
a) 0 sq.units b) 5 sq,units c) 25 sq.units d) none of these

9. If the ratio of the height of a tower and the length of its shadow is 1:1 , then the angle of elevation of the sun has the measure —--------.
a)45 degree b) 30 degree c) 90 degree d) 60 degree

10) If the surface area of a sphere is 100π sq.cm then its radius is equal to —------
a) 25cm b) 100 cm c) 5 cm d) 10 cm

11.The total surface area of a hemisphere is how much times the square of is radius ?—------
a) b) 4 c) 3 d) 2

12.Which one of the following is false?

a) P(A) = 1 b) P(A) > 1 c) P(A) = 0 d) P(A) = 2/3

13.----------is to be added to make $x^2 + 64$ as a perfect square.
a)4x b) 16x c) 8x d) -8x

14. The number of tangents that can be drawn from a point outside the circle is —----------.
a) One b) two c) infinity d) zero

II ANSWER ANY 10 QUESTIONS (QN.NO. 28 is compulsory) 10 x2 = 20

15. A= { 1,2,3} ,B = { x/x is a prime number less than 10 } then find A X B, B X A.

16. A = { 1,2,3,4,5,..... 45} and R be defined as " is square of a number" on A. Write R as a subset of A X A. Also find the domain and range of R.

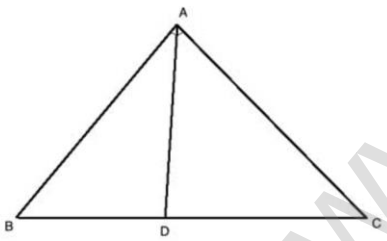
17. Find all the positive integers which gives the remainder 2 when divided by 3.

18. Find the nature of the roots of the quadratic equation $9y^2 - 6y + 2 = 0$

19. Simplify $\frac{x^2 - 11x + 18}{x^2 - 4x + 4}$

20. What length of ladder is needed to reach a height of 7 feet along the wall when the base of the ladder is 4 ft from the wall? Round off your answer to the next tenth place
.

21.From the figure, AD is the bisector of angle A. If BD = 4 cm . DC = 3 cm , AB = 6cm find AC



22. Show the points P (- 1.5, 3) , Q (6,-2) , and R (-3,4) are collinear.

23. Calculate the slope and y intercept of the straight line 8x -7y +6 =0

24. A player sitting on the top of a tower of height 20 m observes a ball lying on the ground at the angle of depression as 60 °. Find the distance between the foot of the tower and the ball.

25. A man has 532 flower pots.He wants to arrange them in rows such that each row contains 21 flower pots, find the number of completed rows and how many flower pots are left over?

26. Two cones of the same radius are having volumes 3600 cu.cm and 5040 cu,cm respectively.Find the ratio of their heights.

27. Three coins are tossed simultaneously. What is the probability of getting i) at least one tail ii) all heads?

28.If the base area of hemispherical solid is 1386 sq.metres, then find its total surface area.

III Answer any 10 questions : (Qn.No. 42 is compulsory) 10 x 5 = 50

29. A = [x W / x< 2 } , B = { x N / 1< x < 5} and C = { 3, 5 } verify that
A X (B U C) = (A X B) U (A X C).

30.In an arithmetic progression , the ratio of 6th and 8th terms is 7: 9 then find the ratio of 9th and 13th terms.

31.If d is the GCD of 32 and 60 and d= 32 x + 60 y then find the value of x and y.

32. Find the square root of $16x^2 + 8x + 1$

33 .Solve x + y+ z = 5, 2x-y+z = 9 , x-2y +3z + 16

34. If α and β are the roots of $x^2 + 6x - 4 = 0$ find the quadratic equation whose roots are
i) α^2 , β^2 ii) $2 / \alpha$ and $2 / \beta$

35.State and Prove Angle Bisector THEOREM.

36.Find the area of quadrilateral whose vertices are (- 9 , 0) , (- 8 , 6), (-1 , - 2) and (- 6 , - 3)

37. Find the equation of the median and altitude of △ ABC through A where the vertices are A (6,2) , B (-5 , -1) and C (1, 9)

38. From the top of a tower 50m high, the angles of depression of the top and bottom of a tree are observed to be 30° and 45 ° respectively. Find the height of the tree. ($\sqrt{3}$ = 1.732)

39. A toy is in the shape of a cylinder surmounted by a hemisphere . The height of the toy is 25 cm. Find the total surface area of the toy if its common diameter is 12 cm.

40. A frustum of height 16 cm whose internal radius 8 cm and external radius 20 cm is fully filled with milk. Find the cost of the milk filled in the bowl if the cost per liter is ₹.40.

41. Two dice are rolled together. Find the probability that the sum of outcome is a) equal to 5 b)Greater than 10 c) less than 13.

42.In an arithmetic progression , sum of first 14 terms is 1050, first term is 10 then find the 20th term.

IV Answer both of the questions 2 x 8 = 16

43. a) Draw two tangents from a point which is 8cm away from the circle of diameter 6cm. Measure the length of the tangent segments .

(OR)

b) Construct a triangle PQR such that PQ = 4.5 cm , $\angle$ R = 35° and the length of the median drawn from the vertex R is RG = 6 cm .

44. a) Draw the graph of $x^2 - 6x + 9 = 0$ and state the nature of the roots.

(OR)

b) Draw the graph of $y = x^2 - 4$ and use it to solve the quadratic equation $x^2 - x - 12 = 0$..

Prepared by
S.Angayarkanni
BT Assistant
BCGGHSS, Udumalpet
Tiruppur District .