DEPARTMENT OF SCHOOL EDUCATION AND LITERACY
DDPI(ADMIN), BANGALORE NORTH, BANGLORE DISTRICT
S.S.L.C EXAM - 2023
MODEL QUESTION PAPERS

MODEL PAPER - 1

**Time : 3 . 15 min**   **Marks : 80**

I. Four alternatives are given to each of the following questions. Choose the most appropriate.   **[8x1=8]**

1. If n^{th} term of an arithmetic progression $a_n = n^2-1$ then its 3rd term is

    A) 2   B) 4   C) 6   d) 8

2. The value of the discriminant of a quadratic equation is '0'. The nature of the roots are

    A) Real & distinct   B) Real & equal   C) No real roots   D) Imaginary numbers

3. The value of $\frac{sin18}{cos72}$ is

    A) 0   B) 1   C) -1   D) 90^0

4. Perimeter of the given figure is

    A) $2\pi r + d$ B) $2\pi r - d$ C) $\pi r + d$ D) $\pi r - d$

5. Faces of a cubic die numbered from 1 to 6 is rolled once. The probability of getting an odd number on the top face is

    A) $\frac{3}{6}$ B) $\frac{1}{6}$ C) $\frac{4}{6}$ D) $\frac{2}{6}$

6. Given that HCF (4, 22) = 2 find LCM (4, 22) is

    A) 44   B)22   C)66   D)88

7. In the given fig $\llcorner$ABC=60^0.

    then $\llcorner$COB is

    A) 60   B) 50   C) 40   D) 30

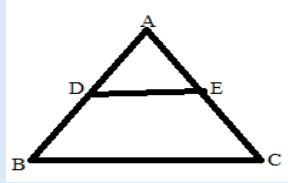   a.   A
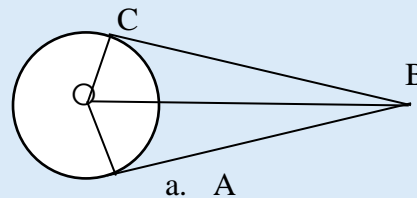
8. The distance of a point p (x, y) from the origin (0,0) is given by

    A) x^2-y^2 B) x^2+y^2 C) $\sqrt{x^2 - y^2}$ D)$\sqrt{x^2 + y^2}$

II) Solve the following problems.   **[8x1=8]**

9. Find the value of $\dfrac{tan30}{cot60}$

10. Find the nature of roots of given quadratic equation $2x^2+4x-3=0$.

11. Write the formula to find the volume of a frustum of cone.

12. In the given fig if AD=1.5cm DB=3cm AC=3cm AE=?

13. Find the volume of sphere whose radius is 7cm

14. Define Euclid's division lemma.

15. How many two-digit numbers are divisible by 3?

16. Write the sample space for tossing three coins simultaneously.

III)Solve the following problems. [8x2=16]

17. Solve the given pair of linear equations by elimination method

    $x + y = 14$ and $x - y = 4$

18. A fraction becomes $\dfrac{1}{3}$ when 1 is subtracted from the numerator and it becomes

    $\dfrac{1}{4}$ when 8 is added to its denominator. Find the fraction.

19. Draw a circle of radius 4 cm from a point 10cm away from its center, construct the pair of tangents to the circle and measure their length.

20. Find the co-ordinates of the point which divides the line joining the points (-1,7) and (4, -3) in the ratio 2:3.

21. Prove that $5 - 2\sqrt{3}$ is Irrational.

22. Solve $2x^2 + x - 4 = 0$ using quadratic formula

23. One card is drawn from a well- shuffled deck of 52 cards. Find the probability of getting (i) the jack of hearts   (ii) the red face cards

24. Find the mode of the following data?

C.I	0-10	10-20	20-30	20-40	40-50
F	3	5	9	5	3

OR

Find the mean for the following group data by direct method?

| C.I	10-20	20-30	30-40	40-50	50-60
F	2	3	5	7	3

IV) Solve the following problems.   [9x3=27]

25. Prove that the length of tangents drawn from an external print to a circle are equal.

26. Construct an isosceles triangle whose base is 8cm and altitude 4cm & then construct another   triangle whose sides are 1½ times corresponding sides of the isosceles triangle.

27. The perpendicular from A on side BC of a $\triangle ABC$ intersects BC at D such that DB=3CD prove that $2AB^2=2AC^2+BC^2$

28. Find the area of the shaded region where ABCD is square of side 14Cm.
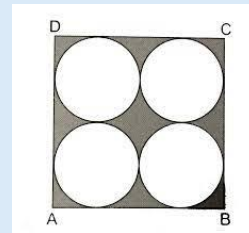
29. Find the value of 'K' for which the points are collinear (7, -2) (5,1) (3,K).

30. In given fig XY & X^1Y^1 are two parallel tangents to a circle with center 0 and another tangent AB with point of contact C intersecting XY at A & X'Y' at B prove that $\llcorner AOB=90^0$
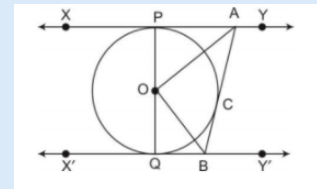
31. Prove that $\sqrt{\dfrac{1+\sin A}{1-\sin A}} = \sec A + \tan A$

32. Divide the given polynomial $3x^2$-x^3-$3x+5$ by x-1-x^2

33. An insurance policy agent found the following data for distribution of ages of
35 policy holders.   Draw a less than type of Ogive for the given data.

Age (in years)	No of policy holders
Below 20	2
Below 25	6
Below 30	12
Below 35	16
Below 40	20
Below 45	25
Below 50	35

V) Solve the following problems. [4x4=16]

34. Find the solution of the following pair of linear equation by the graphical method $2x + y = 6$ and $2x - y = 2$

35. The shadow of a tower standing on a level ground is found to be 40m longer when the sun's altitude is 30^0 than when it is 60^0 Find the height of the tower?

36. A Gulab jamun contain sugar syrup up to about 30% of its volume. Find approximately how much syrup would be found in 45 Gulab jamuns. Each shaped like a cylinder with two hemisphere ends with the length 5cm & diameter 2.8cm.
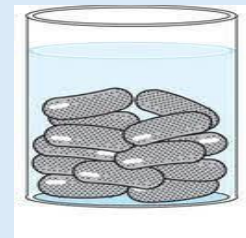
37. The seventh term of an A.P is four times its second term & twelfthh term is 2 more than three times of its fourth term. Find the progression?

VI) Solve the following [1x5=5]

38. Prove that "The ratio of the areas of two similar triangles is equal to the square of ratio of their corresponding sides."

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