BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

ANNUAL EXAMINATION , 2025

MATHEMATICS (041)

Class : VIII   Duration: **3 Hrs**
Date : 08-03-2025   **MARKING SCHEME**   Max. Marks: **80**

SECTION A

Each question carries 1 mark. (mcq)

1. a x a x a   [D]
2. 2   [C]
3. Marked Price (M.P.)   [B]
4. 1 : 100   [C]
5. 4   [C]
6. Trinomial   [c]
7. Volume   [C]
8. 77 cm^3 [C]
9. 7 $x\,y$ [A]
10. 56   [B]
11. 0,0   [C]
12. Unique solution   [A]
13. 9   [B]
14. 120^0 [D]
15. Hexagon   [B]
16. 3^{-7} [A]
17. 9,00 00 00 00   [A]
18. (a + b) (a – b)   [A]
19.   [A]
20.   [D]

SECTION B

21. 2560 = 2 x 2 x 2 x 2 x 2 x 2 x 2 x 2 x 2 x **5**   1

     Smallest number to be multiplied is **5 x 5**   1

22. No. of students interested = 72 % 25   ½

$$= \frac{72}{100} \text{ x } 25$$ ½

$$= 18$$ ½

No of students are not interested = 25 – 18

$$= 7$$ ½

Value after one year = p (1- $\frac{R}{100}$)^2 ½

$$= \frac{42000 \, X \, 23}{25}$$ 1

	= Rs 38,640	½

23. i) $5x(2x + 3y + 5) = 10x^2 + 15xy + 25x$ 1

ii) $(7x + 3)(5x + 2) = 35x^2 + 29x + 6$ 1

24. $3x = 18$ ½

     $x = 6$ ½

   $3y - 1 = 26$ ½

     $3y = 27$ ½

      $y = 9$ ½

       OR

$2x + 10 + 3x - 40 = 180$ Adjacent angles   ½

        $5x = 210$ ½

         $x = 42$

   $\therefore$ Angles are $2 \times 42 + 10 = 94^0, 94^0$ ½

       and $3 \times 42 - 40 = 86^0, 86^0$ ½

25. a) $[3^{-1} \times 4^{-1}]^2 = [\frac{1}{3} \times \frac{1}{4}]^2$ ½

            $= [\frac{1}{144}]$ ½

   b) $[3^{-1} \div 5^{-1}]^2 = [\frac{1}{3} \div \frac{1}{5}]^3$ ½

               $= [\frac{1}{3} \times \frac{5}{1}]^3$

               $= \frac{125}{27}$ ½

SECTION C

26. $13824 = \sqrt[3]{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3}$ 2

        $= \sqrt[3]{2 \times 2 \times 2 \times 3}$ ½

        $= 24$ ½

27. Surface area of Cube $= 6a^2$ 1

     $\frac{600}{6} = a^2$ 1

     $100 = a^2$ ½

     10 cm $= a$ ½

       OR

Area od Trapezium $= \frac{1}{2}(20 + 30) \times 12$ ½ + ½

           $= (50) \times 6$ 1

           $= 300$ cm^2 ½ + ½

28 a) $100m^2 - 121n^2 = (10m)^2 - (11n)^2$ ½

            $= (10m + 11n)(10m - 11n)$ 1

   b) $49x^2 - 36. = (7x)^2 - (6)^2$ ½

           $= (7x - 6)(7x + 6)$ 1

29. $8x + 4 = 3(x - 1) + 7$

        $8x - 3x + 4 = -3 + 7$ 1

            $5x = 4 - 4$ 1

             $x = 0$ 1

30. $\angle A + \angle D = 180$ Adjacent angles   ½

    $\angle A \quad = 180^0 - 50^0$ ½

           $= 130^0$

       $x = 130^0$ ½

       $x = y$ corresponding angles   ½

       $y = 130^0$ ½

       $x = z = 130^0$ opposite angles   ½

31. $7^{2x+1} \div 49 = 7^3$

       $7^{2x+1} \div 7^2 = 7^3$ ½

       $7^{2x+1-2} = 7^3$ ½

       $7^{2x-1} = 7^3$ ½

       $2x - 1 = 3$ ½

         $2x = 4$ ½

          $x = 2$ ½

                              OR

    Usual form: i) $3.89 \times 10^3 = 3890$ 1

                ii) $2.98 \times 10^{-3} = 0.00298$ 1

                iii) $1.23 \times 10^{-5} = 0.0000123$ 1

                          SECTION D

32. Percentage of people like other game = 100 % - 90 %

                                    = 10 %   ½

    No of people like cricket = 60 % 0f 50 lakh   ½
                              = 30 lakh   1

    No of people like football = 30 % 0f 50 lakh   ½

                               = 15 lakh   1

    No of people like other game = 10 % 0f 50 lakh   ½

                                 = 5 lakh   1

33. I) $(a^2 + 5)(b^3 + 3) + 5 = a^2 b^3 + 3a^2 + 5b^3 + 15 + 5$ 1
                            $= a^2 b^3 + 3a^2 + 5b^3 + 20$ ½

    ii) $ac - a\cancel{d} + b\cancel{c} - bd + ac + a\cancel{d} - b\cancel{c} - bd + 2ac + + 2bd$ 1
       $ac + ac - bd - bd + 2ac + 2bd$ ½
       $2ac - 2\cancel{b}d + 2ac + 2\cancel{b}d$ 1
       $2ac + 2ac$ ½
       $4ac$ ½

34. Let length of side along road = x ½
    $\therefore$ Length of side along river = $2x$ ½
    Area of the Trapezium = $\frac{1}{2}$ (sum of the parallel side) height.   ½
                    $10500 = \frac{1}{2}(x + 2x) \times 100$ ½

$$10500 = 3x \times 50 \qquad 1$$

$$\frac{10500}{50} = 3x \qquad \tfrac{1}{2}$$

$$210 = 3x$$

$$x = 70 \qquad \tfrac{1}{2}$$

Length of side along road = 70 m $\tfrac{1}{2}$

Length of side along river = 140 m $\tfrac{1}{2}$

OR

Area to be painted = 2 (l + b) x h + l x b $\tfrac{1}{2}$

$$= 2 (15 + 10) \times 7 + 15 \times 10 \qquad 1$$

$$= 2 \times 25 \times 7 + 150 \qquad 1$$

$$= 350 + 150 \qquad \tfrac{1}{2}$$

$$= 500 \text{ cm}^2 \qquad \tfrac{1}{2}$$

No of cans required $= \dfrac{500}{100}$ 1

$$= 5 \qquad \tfrac{1}{2}$$

35. a) $p^4 - 81 = (p^2)^2 - (9)^2$ $\tfrac{1}{2}$

$\qquad = (p^2 + 9)[p^2 - 9]$ $\tfrac{1}{2}$

$\qquad = (p^2 + 9)[(p^2) - (3)^2]$ 1

$\qquad = (p^2 + 9)(p + 3)(p - 3)$ $\tfrac{1}{2}$

b) $\dfrac{y^2 + 7y + 10}{y + 5} = \dfrac{y^2 + 5y + 2y + 2 \times 5}{y + 5}$ 1

$\qquad = \dfrac{y(y + 5) + 2(y + 5)}{y + 5}$ $\tfrac{1}{2}$

$\qquad = \dfrac{(y + 5)(y + 2)}{y + 5}$ 1

$\qquad = (y + 2)$ $\tfrac{1}{2}$

OR

a) $a^4 - b^4 = (a^2)^2 - (b^2)^2$ 1

$\qquad = (a^2 + b^2)[a^2 - b^2]$ $\tfrac{1}{2}$

$\qquad = (a^2 + b^2)(a + b)(a - b)$ $\tfrac{1}{2}$

b) $p^2 + 6p - 16 = p^2 + 8p - 2p - 16$ 1

$\qquad = p(p + 8) - 2(p + 8)$ $\tfrac{1}{2}$

$\qquad = (p + 8)(p - 2)$ 1

SECTION E

36. i) 256 = 2 x 2 x 2 x 2 x 2 x 2 x **2 x 2** $\tfrac{1}{2}$

It is not a perfect cube $\tfrac{1}{2}$

ii) **2** is smallest number to be multiplied to make it perfect cube. 2

OR

$\sqrt[3]{256 \times 2} = \sqrt[3]{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times \mathbf{2 \times 2 \times 2}}$

$\qquad = 8$

iii) Unit digit of cube of 256 is **6** 1

37. i) Shape of well is Cylindrical   1

    ii) Radius $= \dfrac{7}{2}$ or 3.5   1

    iii) Volume $= \pi\, r^2\, h$

$$= \dfrac{22}{7} \times \dfrac{7}{2} \times \dfrac{7}{2} \times 20$$

$$= 770 \text{ m}^2 \qquad\qquad\qquad 2$$

             OR

    i)   Curved surface area $= 2\,\pi\, r\, h$

$$= 2 \times \dfrac{22}{7} \times \dfrac{7}{2} \times 20$$

$$= 440 \text{ m}^2$$

38. i) 4 unit = 1 hour   1

    ii)   From 8 am to 11 : 30 am ($3\frac{1}{2}$ hours)   2

        OR

        Yes, between 10 am and 10:30 am, indicated by horizontal line.

    iii)   22 Km   1

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