Time: 60 mints **Marks: 60**

KAHARIAN GIRLS CADET COLLEGE
KALLAR KAHAR
Entrance test 9th Class 2023
Paper: Mathematics

NOTE:All questions are compulsory. Calculators are not allowed. Write down formula where necessary and solve questions step by step.

All questions carry equal marks. (12×5=60)

1. Verify commutative law of union for the sets E & O?
2. Evaluate $(777)_8$ - $(2343)_5$ - $(1000111)_2$?
3. Compute mean and median

   5, 4, 1, 4, 0, 3, 4, 119?
4. Find the value of

   Cos 60 Cos 30 + Sin 60 Sin 30?
5. The length and width of rectangle are 8cm & 6cm respectively. Find the length of its diagonals ?
6. Factorize $7x^4$- $14x^2y$ + 21xy^3 ?
7. If x - $\frac{1}{x}$ = 2 ,find value of x^3 - $\frac{1}{x^3}$?
8. Find product of $3x^2$ – 7x +5 & $4x^2$ – 2x + 1?
9. If 35 labourers dig 805 cm^3 of earth in 5 hours, how much of the earth will 30 labourers dig in 6 hours?
10. Find square root of 225?
11. Write power set of {a, b, c}?
12. Find four solutions for 3x+y=2

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1. If A = {a , b, c}, B = {d,e,f} & C = {a,f,c} then prove $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
2. Find cube root of 9261.
3. 5 workers take 12 days to weed a filed. How many days would 6 workers take to weed it.
4. The sum of two polynomials is $x^2 + 2x - y^2$. If one polynomial is $x^2 - 2xy + 3$ then find the other polynomial.
5. Find value of $x^3 + \frac{1}{x^3}$, when $x + \frac{1}{x} = 5$
6. Find solution set by elimination method for $2x - 3y = 6$ & $3x + 5y = 0$
7. In an isosceles right angled triangle, the square of hypotenuse is 98 cm. Find the length of equal sides.
8. Compute median and mode.

   29, 32, 45, 45, 27, 30, 30, 30, 47, 35, 45, 37
9. Find radius of a sphere if area of its surface is 6.16 m^2
10. Solve and show the solution of $4x + 1 \leq 13$ on number line.
11. Factorize $2x^2y - 2xy + 4y^2x - 4y^2$
12. Simplify $\frac{2^5 \times 3^7 \times (2^5)^3}{(2^3)^2 + (3^2)^2 + (2 \times 3)^2}$