REVISION TEST 03
(REAL NUMBERS, POLYNOMIALS & LINEAR EQUATIONS)
CLASS: X : MATHEMATICS

M.M. 40 Marks **T.T. 1 hr 15 min**

SECTION – A(1 marks each)

1. Write the condition to be satisfied by q so that a rational number p/q has a non-terminating repeating decimal expansion.

2. If $3x + 2y = 13$ and $3x - 2y = 5$, then find the value of $x + y$.

3. For which value of k will the following pair of linear equations have no solution?
$3x + y = 1$ and $(2k - 1)x + (k - 1)y = 2k + 1$

4. Find a quadratic polynomial, the sum and product of whose zeroes are 5 and 3 respectively.

SECTION – B(2 marks each)

5. Show that the number 6^n, where n is a natural number, cannot end with 0.

6. Solve the equations: $152x - 378y = -74$ and
$-378x + 152y = -604$

7. Use Euclid's division algorithm to find the HCF of 867 and 255

8. If the zeroes of the quadratic polynomial $x^2 + (a + 1)x + b$ are 2 and –3, then find the value of a and b.

SECTION – C(3 marks each)

9. Solve: $\dfrac{1}{2(2x+3y)} + \dfrac{12}{7(3x-2y)} = \dfrac{1}{2}; \quad \dfrac{7}{(2x+3y)} + \dfrac{4}{(3x-2y)} = 2.$

10. Find the zeroes of the quadratic polynomial $6x^2 - 7x - 3$ and verify the relationship between the zeroes and the coefficients.

11. Find the zeroes of the polynomial $f(x) = x^3 - 5x^2 - 2x + 24$, if it is given that the product of two zeroes is 12.

12. Prove that $3 - 5\sqrt{2}$ is an irrational number.

SECTION – D(4 marks each)

13. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.

14. Roohi travels 300 km to her home partly by train and partly by bus. She takes 4 hours if she travels 60 km by train and the remaining by bus. If she travels 100 km by train and the remaining by bus, she takes 10 minutes longer. Find the speed of the train and the bus separately.

15. Find all the zeroes of the polynomial $x^4 - 3x^3 + 6x - 4$, if two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$.

16. Use Euclid's division lemma to show that the cube of any positive integer is of the form 9m, 9m + 1 or 9m + 8.

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