CONCEPT APPLICATION LEVEL - II

SECTION - A

➢ **Fill in the blanks**

Q.1   Divide $\left(x^2 + \dfrac{1}{x^2} + 2 \right)$ by $\left(x + \dfrac{1}{x} \right)$ _____

Q.2   Express $10\,xy\,(x+3)$ as irreducible factor form _____

Q.3   Divide $-15m^2n$ by $-5\,mn$ _____

Q.4   Divide $a^2x^2 - 25$ by $(ax + 5)$ _____

Q.5   Factorise : $x^4 - 1.$ _____

Q.6   The process of writing a given expression as the product of two or more factors is called _____ Factorization.

Q.7   If 'a' is any rational number, then $a \times a \times a \times$ _____ m times.

Q.8 $\dfrac{9x^2 - 16}{6x + 8}$ is written in its lowest terms as = _____ .

Q.9 $4x^2 + 6xy =$ _____

Q.10 $x^2 + 11x + 24 =$ _____

Q.11 $x^2 - 11x + 28 =$ _____ .

Q.12 $4x^2 - 169\,y^2 =$ _____ .

Q.13 $4x^2 + 28x + 49 =$ _____ .

SECTION - B

➢ **Multiple Choice Questions**

Q.1   Which of the following are the factor of $1 - x^2$?
      (A) $(x+1)(x-1)$ (B) $(1-x)(1+x)$ (C) $(1-x)(1-x)$ (D) $(1-x)(1-x)$

Q.2   Which of the following is the common factor of :
      5xy, 3pqr and 40 xyz ?
      (A) 5   (B) 0   (C) xy   (D) 1

Q.3   Which of the following is quotient obtained on dividing $-18\,xyz^2$ by $-3xz$?
      (A) 6 yz   (B) -6 yz   (C) $6\,xy^2$ (D) 6 xy

Q.4   Which of the following is quotient obtained on dividing $(x^2 - b)(x - a)$ by $-(x - a)$?

      (A) $(x^2 - b)$ (B) $\dfrac{-(x^2 - b)}{(x - a)}$ (C) $-(x^2 - b)$ (D) $-(x + a)$

Q.5   Which of the following is true ?
      (A) $ab - a - b + 1 = (1 + a)(1 - b)$ (B) $ab - a - b + 1 = (a - 1)(b - 1)$
      (C) $ab - a - b + 1 = (1 - a)(b - 1)$ (D) $ab - a - b + 1 = (a - 1)(1 - b)$

Q.6   Which of the following is equal to $x^3 - 225\,x$
      (A) $x(1 - 15x)(1 + 15\,x)$ (B) $x(x - 15)(x + 15)$
      (C) $x(1 - 15x)(1 - 15x)$ (D) $x(1 + 15x)(1 - 15x)$

Q.7   Which of the following is the quotient when $44x^2(x^2 - 5x - 24)$ is divided by $22x(x - 8)$:
      (A) $x(x + 3)$ (B) $2x(x + 3)$ (C) $2(x - 3)$ (D) $x(x - 3)$

Q.8   By which of the following $a^4 - b^4$ be divided to get quotient $(a^2 + b^2)(a - b)$ and, remainder as 0.:
(A) $a^2 + b^2$ (B) $a - b$ (C) $a + b$ (D) $a^2 - b^2$

Q.9   Factorise : $\left(5x - \dfrac{1}{x}\right)^2 + 5\left(5x - \dfrac{1}{x}\right) + 6$

(A) $\left(5x - \dfrac{1}{x} + 3\right)\left(5x - \dfrac{1}{x} + 2\right)$ (B) $\left(5x - \dfrac{1}{x} - 3\right)\left(5x - \dfrac{1}{x} - 2\right)$

(C) $\left(5x - \dfrac{1}{x} + 3\right)\left(5x - \dfrac{1}{x} - 2\right)$ (D) $\left(5x - \dfrac{1}{x} - 3\right)\left(5x - \dfrac{1}{x} + 2\right)$

Q.10   Factors of $\left(x^3 + \dfrac{1}{x^3} - 2\right)$ are :

(A) $\left(x + \dfrac{1}{x} + 1\right)\left(x^2 + \dfrac{1}{x^2} + \dfrac{1}{x} + 1\right)$ (B) $\left(x + \dfrac{1}{x} - 1\right)\left(x^2 + \dfrac{1}{x^2} - \dfrac{1}{x} + x\right)$

(C) $\left(x + \dfrac{1}{x} - 1\right)\left(x^2 + \dfrac{1}{x^2} - \dfrac{1}{x} + x\right)$ (D) None of these

Q.11 $(x^{51} - 1)$ is always divisible by
(A) $(x + 1)$ (B) $(x - 1)$ (C) $(x + 2)$ (D) $(x - 2)$

Q.12   The factors of $y^2 + 2 + \dfrac{1}{y^2}$ are :

(A) $\left(y + \dfrac{1}{y}\right)^2$ (B) $\left(y - \dfrac{1}{y}\right)^2$ (C) $\left(y + \dfrac{1}{y} + 1\right)^2$ (D) $\left(y + \dfrac{1}{y} - 1\right)^2$

Q.13   When $16x^2 - 9y^2$ is resolved into factors, we get
(A) $(8x - 3y)^2$ (B) $(4x - 3y)(4x + 3y)$ (C) $(4x - 3y)^2$ (D) $(3x - 4y)(3x + 4y)$

Q.14   The factors of $y^2 + 7y + 10$ are
(A) $(y - 5)(y - 2)$ (B) $(y - 5)(y + 2)$ (C) $(y + 5)(y + 2)$ (D) $(y + 5)(y - 2)$

Q.15   Which of the following is a common factor is $15x^2$ and $18xy^2$?
(A) 5   (B) 3x   (C) 5x   (D) 6

Q.16   Which of the following is the common factor of $(2x - 3)$ and $(4x - 6)$?
(A) 2   (B) 3   (C) $2x - 3$ (D) $4x - 6$

Q.17 $55 xy^2 \div 11 xy =$ _____
(A) 5y   (B) 5x   (C) $5xy^2$ (D) 5xy

Q.18 $\dfrac{5x + 10}{2} =$ _____

(A) $5x + 5$ (B) $\dfrac{5x}{2} + 10$ (C) $\dfrac{5x}{2} + \dfrac{5}{2}$ (D) $\dfrac{5x}{2} + 5$

Q.19   Which of the following is/are the factors(s) of $25x^2 - 36y^2$?
       (A) $5x + 6y$ (B) $5x - 6y$ (C) $25x^2 - 36y^2$ (D) All of these

Q.20 $ac + ad + bc + bd =$ _____
       (A) $(a + b)(b + d)$ (B) $(a + d)(b + c)$ (C) $(a + b)(c + d)$ (D) None of these

Q.21   Find the value of $9x^2 + 3x + 1$, when $x = -\dfrac{1}{3}$

       (A) 1   (B) 2   (C) 3   (D) 4

Q.22   Factorize : $4t^4 + 4t^2 + 1$
       (A) $(2t^2 + 1)^2$ (B) $(2t + 2)^2$ (C) $(2t^2 - 1)^2$ (D) $(4t + 4)^2$

Q.23   Factorize : $x^2y + xy^2 + 3x + 3y$
       (A) $(xy + 3)(x + y)$ (B) $(xy + 3)(3x + y)$ (C) $(x + 2y)(2x + y)$ (D) $(xy + 3)(y + 3x)$

Q.24   Divide $x^2 - 9x + 14$ by $x - 2$
       (A) $x - 7$ (B) $x - 8$ (C) $x - 5$ (D) $x - 2$

Q.25   Divide $4p^2q^4 r^3 \div 12\ pqr$.

       (A) $\dfrac{1}{3}pq^3r^2$ (B) pqr (C) $p^2q^3r^2$ (D) $3pq^3r^2$

Q.26   Divide $4(12x^4 - 25x^3 - 7x^2)$ by $8x(4x + 1)$

       (A) $x(4x + 1)$ (B) $\dfrac{x}{2}(3x - 7)$ (C) $\dfrac{x(x + 3)}{2}$ (D) None

Q.27   Divide $3x^3 + 7x^2 + 2x - 2$ by $x + 1$ and find the quotient.
       (A) $(x + 3)(x + 4)$ (B) $3x^2 + 4x - 2$ (C) $x^2 + 5x - 6$ (D) None

SECTION - C

➢   **Match the Column :**
Q.1   Match the Column
       Column A   **Column B**
       (A) $x^4 + x^2y^2 + y^4$ (p) $(x + 1)(x^2 + 1)$
       (B) $1 - x^2 + 2xy - y^2$ (q) $(1 + x - y)(1 - x + y)$
       (C) $x^3 + x^2 + x + 1$ (r) $(x^2 + xy + y^2)(x^2 - xy + y^2)$

Q.2   Match the Column
       Column-A   **Column B**

       (A) $\left(\dfrac{2}{3}a^2b\right)\left(\dfrac{-9}{4}ab^2\right)$ (p) $\dfrac{-4}{9}p^5q^5$

       (B) $(-pq)(-2.3\ p^2\ q^2)$ (q) $-0.45\ a^3b^3$

       (C) $(-1.5\ a^2b)(0.3\ ab^2)$ (r) $\dfrac{-3}{2}a^3b^3$

       (D) $\left(\dfrac{-3}{7}p^3q^2\right)\left(\dfrac{-14}{9}pq^2\right)\left(\dfrac{-2}{3}pq\right)$ (s) $-2.3\ p^3q^3$