Chapter—14

Factorisation

1. Write all possible factors of the following:

(i) $8x^2$ (ii) $17xy^2$ (iii) $33y^2z$

(iv) $15pq$ (v) $-6ab$

2. Write common factors of the following.

(i) $14x^2, 35xy, 42xy^2$ (ii) $4p, -16pq^2, 20p^2q$

(iii) $-15a^2, -45a^3, -75a^4$ (iv) $2a^2b^3, 8a^3b^2, 12a^2b^2$

3. Find the HCF of the terms in each of the following algebraic expressions.

(i) $5a^2 + 15a^3 - 20a$ (ii) $2xy^2 + 4yx^2 + 6xy$

(iii) $3pq - 5p - 2p^2q$ (iv) $-12ab^2 - 15a^2b - 18a^2b^2$

4. Factorize the following expressions:

(i) $4x - 12x^2$ (ii) $6x(x-2y) + 5y(x-2y)$

(iii) $(x + 2y)^2 - 4x - 8y$ (iv) $15xy + 10y - 6x - 4$

(v) $ax^2 + by^2 + bx^2 + ay^2$ (vi) $ab - a - b + 1$

5. Factorize the following using identities:

(i) $9a^2 - 25b^2$ (ii) $48p^2 - 27q^2$

(iii) $36x^2 + 60xy + 25y^2$ (iv) $(2a - b)^2 - 9c^2$

(v) $x^2 + 4y^2 - 4xy - 9z^2$ (vi) $xy^5 - yx^5$

6. Factorize the following by using $(x + a)(x + b) = x^2 + (a + b)x + ab$

(i) $x^2 + 14x + 45$ (ii) $x^2 - 22x + 120$

(iii) $y^2 + 5y - 36$ (iv) $a^2 + 3a - 88$

(v) $x^2 - 4x - 21$

7. Divide as directed:

(i) $18a^2b^3$ by $6ab^2$ (ii) $72a^3b^4$ by $(-8a^2b^2)$

(iii) $(-4a^3 + 12a^2 - 16a)$ by $4a$ (iv) $(x^2 - 5x + 6)$ by $(x - 3)$

(v) $(ax^2 - ay^2)$ by $(ax + ay)$ (vi) $(y^2 + 8y + 12)$ by $(y + 6)$

8. State whether true or false (also give reason):

(i) $\frac{2x-5}{2x} = -5$ (ii) $3(y - 2) = 3y - 2$

(iii) $4x + 3y = 7xy$ (iv) $(3x)^2 + 4(3x) + 5 = 3x^2 + 12x + 5$

(v) $a(5a + 2) = 5a^2 + 2a$