Unit 4 Factorization and Algebraic Manipulation

Sr. No.	Questions	A	B	C	D
1	The factorization of $12x + 36$ is:	$12(x + 3)$✔	$12(3x)$	$12(3x + 1)$	$x(12 + 36x)$
2	The factors of $4x^2 - 12x + 9$ are:	$(2x + 3)^2$	$(2x - 3)^2$✔	$(2x - 3)(2x + 3)$	$(2 + 3x)(2 - 3x)^2$
3	The HCF of a^3b^3 and ab^2 is:	a^3b^3	ab^2✔	a^4b^5	a^2b
4	The LCM of $16x^2$, $4x$ and $30xy$ is:	$480x^3y$	$240xy$	$240x^2y$✔	$120x^4y$
5	Product of LCM and HCF = _____ of two polynomials.	sum	difference	product✔	quotient
6	The square root of $x^2 - 6x + 9$ is:	$\pm (x - 3)$✔	$\pm (x + 3)$	$x - 3$	$x + 3$
7	The LCM of $(a - b)^2$ and $(a - b)^4$ is:	$(a - b)^2$	$(a - b)^3$	$(a - b)^4$✔	$(a - b)^6$
8	Factorization of $x^3 + 3x^2 + 3x + 1$ is:	$(x + 1)^3$✔	$(x - 1)^3$	$(x + 1)(x^2 + x + 1)$	$(x - 1)(x^2 - x + 1)$
9	Cubic polynomial has degree:	1	2	3✔	4
10	One of the factors of $x^3 - 27$ is:	$x - 3$✔	$x + 3$	$x^1 - 3x + 9$	Both A and C

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Solution of MCQs

1	$12x + 36 = 12(x + 3)$
2	$4x^2 - 12x + 9 =?$ $4x^2 - 12x + 9 = (2x)^2 - 2(2x)(2) + (3)^2$ $= (2x - 3)^2$
3	The HCF of a^3b^3 and ab^2 is ab^2. i.e the lowest power of each common factor.
4	LCM is the product of highest powers of all factors.
5	For any two polynomials, $LCM \times HCF = product$
6	square root of $x^2 - 6x + 9 = ?$ $x^2 - 6x + 9 = (x)^2 - 2(x)(3) + (3)^2$ $x^2 - 6x + 9 = (x - 3)^2$ $\sqrt{x^2 - 6x + 9} = \sqrt{(x - 3)^2}$ $\sqrt{x^2 - 6x + 9} = \pm(x - 3)$
7	The LCM is the higher power of the common base $(a - b)$
8	$x^3 + 3x^2 + 3x + 1 = ?$ $x^3 + 3x^2 + 3x + 1$ $= (x)^3 + 3(x)^2(1) + 3(x)(1)^2 + (1)^3$ $= (x + 1)^3$
9	Because the highest power is 3. So, a cubic polynomial has degree 3.
10	One factor is $x - 3$ $x^3 - 27 = (x)^3 - (3)^3$ $= (x - 3)[(x)^2 + (x)(3) + (3)^2]$ $= (x - 3)(x^2 + 3x + 9)$

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