

- If $f(x) = x^3 + ax + b$ is divisible by $(x - 1)^2$, then the remainder obtained when $f(x)$ is divided by $(x + 2)$ is
(A) 1 (B) 0 (C) 3 (D) -1
- If $f(x) = px^7 + qx^3 + rx - 5$ where p, q, r are constants if $f(-7) = 7$, then $f(7) =$
(A) 17 (B) -17 (C) 18 (D) -18
- If the G.C.D of polynomials $x^3 - 3x^2 + ax + 24$ and $x^2 - 7x + b$ is $x - 2$ then the values of $(a, b) =$
(A) (-10, 10) (B) (10, -10) (C) (-1, 10) (D) (-10, 1)
- If $f(x) = x^2 + 5x + a$ and $g(x) = x^2 + 3x + b$ have a common factor, then the common factor is
(A) $x + \frac{1}{2}(b-a)$ (B) $x - \frac{1}{2}(b-a)$ (C) $x + \frac{1}{2}(b+a)$ (D) $x - \frac{1}{2}(a-b)$
- If $a + b + c = 0$ then $a(b+c)^2 + b(c+a)^2 + c(b+a)^2 =$
(A) $3abc$ (B) abc (C) $3a^2b^2c^2$ (D) None of these
- If $1 + x^2 + x = 0$, then $(a + bx + cx^2) + (ax + bx^2 + c) + (ax^2 + b + cx) =$
(A) 4 (B) 100 (C) 50 (D) 0
- $\frac{a^2 - b^2 - 2bc - c^2}{a^2 + b^2 + 2ab - c^2}$ is equivalent to:
(A) $\frac{a+b+c}{a-b+c}$ (B) $\frac{a-b-c}{a+b-c}$ (C) $\frac{a-b-c}{a-b+c}$ (D) $\frac{a-b+c}{a+b+c}$
- If $a + b + c = 11$ and $ab + bc + ca = 20$, then the value of the expression $a^3 + b^3 + c^3 - 3abc$ will be:
(A) 121 (B) 341 (C) 671 (D) 781
- If $a^2 + d^2 = 2(ab + bc + cd - b^2 - c^2)$, then which of the following is true.
(A) $a = b$ and $c = d$ (B) $a \neq b$ and $c \neq d$ (C) $a = b = c = d$ (D) $a = b = c \neq d$
- If $(x+1)$ and $(x+2)$ are factors of $x^3 + 6x^2 + 11x + 6$ then third factor is
(A) $x+3$ (B) $x+6$ (C) $x-3$ (D) None of these
- If $(x, y, z) = x^3 + y^3 + z^3 - 3xyz$ then $f(2006, 2007, -4013) =$
(A) 2006 (B) 2007 (C) 4013 (D) 0
- If $x^3 + 3x^2 + 3x + 1$ is divided by $x + \pi$ then the remainder is
(A) $-\pi^3 + 3\pi^2 - 3\pi + 1$ (B) $\pi^3 - 3\pi^2 + 3\pi - 1$ (C) $\pi^3 - 3\pi^2 + \pi - 1$ (D) None of these
- If $3 + 4i$ is a root of the equation $x^2 + px + q = 0$, then
(A) $p = 6, q = 25$ (B) $p = 6, q = 1$ (C) $p = -6, q = -7$ (D) $p = -6, q = 25$
- $x^n - y^n$ ($n \in \mathbb{N}$) is divisible by $x + y$ if 'n' is
(A) odd (B) even (C) any $n \in \mathbb{N}$ (D) None
- If $x+1$ is a factor of $ax^4 + bx^3 + cx^2 + dx + e$ then
(A) $a+c+e=b+d$ (B) $a+b=c-d$ (C) $a+b+c+d+e=0$ (D) $a+c+b=d+e$

16. G.C.D of $x^6 - 1, x^2 - 4x + 3, (x^2 - 1)^3$
 (A) $x^6 - 1$ (B) $x - 3$ (C) $x^2 - 1$ (D) $x - 1$
17. If $\frac{xy}{x+y} = a, \frac{xz}{x+z} = b$ and $\frac{yz}{y+z} = c$, where a, b and c are other than zero, then x equals
 (A) $\frac{abc}{ab+ac+bc}$ (B) $\frac{2abc}{ab+ac+bc}$ (C) $\frac{2abc}{ab+ac-bc}$ (D) $\frac{2abc}{ac+bc-ab}$
18. If $x^2 - 3x + 2$ is a factor of the expression $x^4 + ax^2 + b$, then the value of a and b are
 (A) $a = -5, b = 4$ (B) $a = 4, b = -5$ (C) $a = 5, b = -4$ (D) None of these
19. The value of P for which the polynomial $4x^4 - 12x^3 + 17x^2 - 12x + P$ is a perfect square is
 (A) -4 (B) 4 (C) 1 (D) 9
20. If $x - 2$ is a factor of $f(x^2 + 2)$ then which of the following is a factor of $f(x)$
 (A) $x + 4$ (B) $x + 6$ (C) $x + 8$ (D) None

KEY

1.	B	2.	B	3.	A	4.	B	5.	A
6.	D	7.	D	8.	C	9.	C	10.	A
11.	D	12.	A	13.	D	14.	B	15.	A
16.	D	17.	D	18.	A	19.	B	20.	D