Q.1 Factorize the following by splitting the middle term:
   (a) 3x^2 + 11x+30  (b) 2\sqrt{2} x^2 +9x+5\sqrt{2}  (c) 4x^2 - 13x + 10
Q.2 Factorize the following by Factor theorem:
   (a)x^3+9 x^2 +23x+15  (b) x^3+6 x^2 +11x+6
Q.3 Factorize the following by using a suitable identity:
   (a) 4x^2 + 12xy + 9y^2  (b) 2a^5 - 5a^2  (c) 2\sqrt{2} x^3 + 3 3 y^3  (d) x^5 - x  (e) x^6 - y^6  (f)
(a-b)^3 + (b-c)^3 +(c-a)^3  (f) x^8-y^8  (g) 27x^3-135x^2+225x -125
Q.4 Evaluate the following using a suitable identity:
   (a) 998^3  (b) 10.2^3  (c) 9.8^3  (d) 998^2 +10^3 +15^3  (g) 10.2 * 9.8
Q.5 If  5 is a zero of x^3 + kx^2 + 2x +8 find k.
Q.6 If (x-2) is a  zero of of x^3 -4x^2 + kx -8 find k.
Q.7 If (x-2 ) and (x +3) are  factors of x^3 + ax^2 +bx -30, find a and b.
Q.8 If x+y+ z = 8 and xy +yz+zx = 20 find the value of  x^3+y^3+z^3 -3xyz.
Q.9 If  a+b+c = 9 and a^2+b^2+c^2=35 find the value of a^3+b^3+c^3 – 3abc.
Q.10 Find the value of 2.7^3 -1.6^3 -1.1^3 using a suitable identity.
Q.11 Factorize the following by using a suitable identity:
   (a) a^3 +b^3 - 8c^3 + 6abc  (b) (a/b)^3 + (b/c)^3 + (c/a)^3 -3  (c) 8x^3 -27y^3 + 125 z^3 + 90xyz
Q.12 Find the value of a^3 + 8b^3 if  a + 2b = 10 and ab =15.
Q.13 Find the value of a^3-27b^3 if  a - 3b =(-6) and ab =(-10)
Q.14 Find the values of m and n if  y^2-1 is a factor of y^4 + my^3 +2y^2 -3y +n.
Q.15 (x +2 ) is a factor of  mx^2+nx^2+x-6. It leaves the remainder 4 when divided by (x-2). Find m and n.
Q.16 The polynomials kx^3 + 3x^2 -3 and 2x^3 – 5x +k leave the same remainder when divided by (x-4). Find k.
Q.17 Factorize : x^3 + 1/x^3 - 2
Q.18 If ab + bc+ ca = 10 and a^2 +b^2 +c^2 = 44 find  a^3+b^3 +c^3 -3abc.
Q.19 Show that x-2 is a factor p(x) = x^3-12x^2+ 44x-48
Q.20 Factorize x^3-2x^2-5x+6
Q.21 If x+p is a factor of p(x) = x^5-p^2x^3+2x+p+1 find the value of p
Q.22 Factorize: (a) a^2 + 1/a^2 +2  (b) 3(x+2)^2 + 17(x+2) +10  (c)4x^2 – 9 y^2 + 20x + 25