POLYNOMIALS

ASSIGNMENT NO. 34

1. Show that $(p-1)$ is a factor of $p^{10}+p^8+p^6-p^4-p^2-1$.
2. Expand:

a. $\left(\frac{1}{x}+\frac{y}{3}\right)^3$

b. $\left(4-\frac{1}{3x}\right)^3$

3. Factorise: $a^3(b-c)^3+b^3(c-a)^3+c^3(a-b)^3$
4. Factorise:

a. $8b^3-\frac{1}{27}$

b. $p^3q^3+\frac{343}{729}$

5. Factorise: $2x^3+9x^2+10x+3$
6. Without actual division, prove that $2x^4-8x^3+3x^2+12x-9$ is exactly divisible by x^2-4x+3
7. If the polynomial ax^3+4x^2+3x-4 and x^3-4x+a leave the same remainder when divided by $(x-3)$, find the value of a.
8. Factorise: $12(x^2+7)^2-8(x^2+7)(2x-1)-15(2x-1)^2$
9. If (-1) is a zero of the polynomial $p(x)=ax^3-x^2+x+4$, find the value of a.
10. If $(3x-2)$ is a factor of $3x^3+x^2-20x+12$, find other factors.