

LIST OF IRREDUCIBLE POLYNOMIALS OF LOW DEGREE MODULO  $p$

(1) In  $\mathbb{Z}_2[x]$  the following are the polynomials that are prime with degree less than 4:

$$x, x + 1$$

$$x^2 + x + 1$$

$$x^3 + x + 1, x^3 + x^2 + 1$$

$$x^4 + x + 1, x^4 + x^3 + 1, x^4 + x^3 + x^2 + x + 1$$

(2) In  $\mathbb{Z}_3[x]$  the following are the polynomials **WITH LEADING COEFFICIENT 1** that are prime with degree less than 4:

$$x, x + 1, x - 1$$

$$x^2 + 1, x^2 + x - 1, x^2 - x - 1$$

$$x^3 - x + 1, x^3 - x - 1, x^3 + x^2 - 1, x^3 + x^2 + x - 1$$

$$x^3 + x^2 - x + 1, x^3 - x^2 + 1, x^3 - x^2 + x + 1, x^3 - x^2 - x - 1$$

$$x^4 + x - 1, x^4 - x - 1, x^4 + x^2 - 1, x^4 + x^2 + x + 1$$

$$x^4 + x^2 - x + 1, x^4 - x^2 - 1, x^4 + x^3 - 1, x^4 + x^3 - x + 1, x^4 + x^3 + x^2 + 1$$

$$x^4 + x^3 + x^2 + x + 1, x^4 + x^3 + x^2 - x - 1, x^4 + x^3 - x^2 - x - 1$$

$$x^4 - x^3 - 1, x^4 - x^3 + x + 1, x^4 - x^3 + x^2 + 1$$

$$x^4 - x^3 + x^2 + x - 1, x^4 - x^3 + x^2 - x + 1, x^4 - x^3 - x^2 + x - 1$$