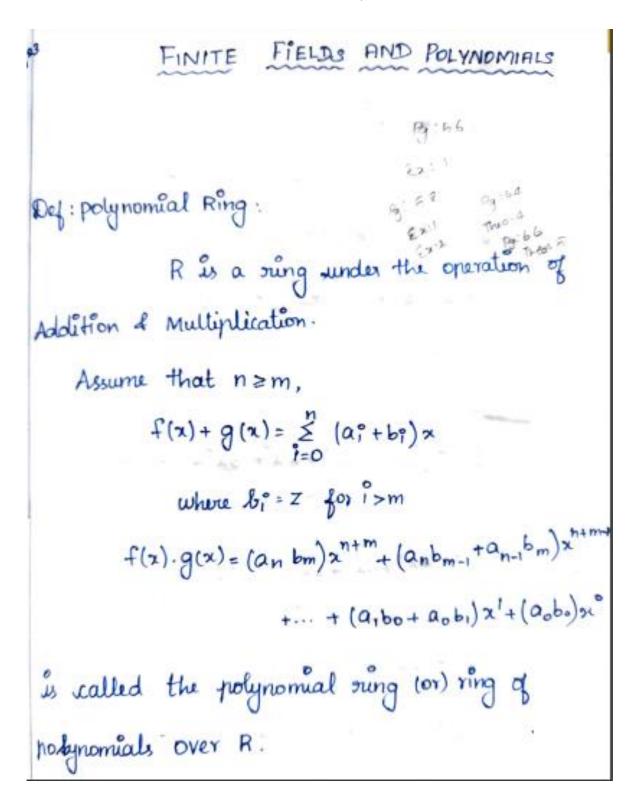


SNS COLLEGE OF ENGINEERING



TOPIC: 1-Polynomials

**Coimbatore - 641 107** 





1.4.4

**SNS COLLEGE OF ENGINEERING Coimbatore - 641 107** 



Example 1:  
Let 
$$f(x) \cdot g(x) \in z_{+}(x)$$
, where  
 $f(x) = gx^{4} + gx^{3} + gx^{3} + x^{4} + and$   
 $g(x) = gx^{3} + 5x^{2} + 5x + 1$ , determine the  
values of  $f(x) + g(x) \cdot f(x) - g(x)$   
 $f(x) + g(x)$   
Solution:  
 $f(x) + g(x) = (gx^{4} + gx^{3} + gx^{2} + x + 4) + (gx^{2} + 5x^{2} + 6x + 1)$   
 $= gx^{4} + 5x^{3} + gx^{2} + 1x + 5x$   
 $(gx^{2} + 5x^{2} + 6x + 1)$   
 $= gx^{4} + 5x^{3} + gx^{2} + 1x + 5x$   
 $(gx^{1} - g(x) = (gx^{4} + gx^{3} + gx^{2} + x + 4) - (gx^{3} + 5x^{2} + 6x + 1)$   
 $= gx^{4} + 5x^{3} + 1x^{2} + 5x$   
 $f(x) - g(x) = (gx^{4} + gx^{3} + gx^{2} + x + 4) - (gx^{3} + 5x^{2} + 6x + 1)$   
 $= gx^{4} - x^{3} - gx^{2} - 5x + 3$ ,  
 $(1 \equiv 6 \pmod{7}), (-g \equiv 5 \pmod{3}),$   
 $(-5 \equiv g \pmod{3})$   
 $= gx^{4} + 6x^{2} + 5x^{2} + 9x + 3$ 



SNS COLLEGE OF ENGINEERING Coimbatore - 641 107



$$\begin{aligned} g(x) * g(x) &= (Dx^{4} + Dx^{2} + 9x^{2} + 9x^{4} + 7x + h) * (Sx^{4} + 10x^{4} + 10x^{4} + 12x^{5} + Dx^{4}) + (5x^{4} + 10x^{4} + 12x^{5} + Dx^{4}) + (5x^{4} + 10x^{4} + 12x^{5} + Dx^{4}) + (9x^{4} + 19x^{4} + 12x^{5} + 3x^{2}) + (9x^{4} + 19x^{4} + 10x^{4}) + (10x^{4} + 10x^{4} + 10x^{5} + 10x^{5}$$