SCOTT'S FIBONACCI SCRAPBOOK

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The following generating functions are submitted to continue the list in "A Primer for the Fibonacci Numbers, Part VI," by V. E. Hoggatt, Jr., and D. A. Lind, Fibonacci Quarterly, Vol. 5, No. 5, 1967, pp. 445-460. From time to time, as space permits, more generating functions and special results will be placed in this column in order that they may be properly recorded. Thanks to Kathleen Weland for verifying these.

$$\sum_{n=0}^{\infty} L_{n+k}^3 x^n = \frac{P_k(x)}{1 - 3x - 6x^2 + 3x^3 + x^4} \qquad k = 0, 1, 2, 3$$

$P_0(x) = 8 - 23x - 24x^2 + x^2$

$P_1(x) = 1 + 24x - 23x^2 - 8x^3$

$P_2(x) = 27 - 17x - 11x^2 - x^3$

$P_3(x) = 64 + 151x - 82x^2 - 27x^2$

$$\sum_{n=0}^{\infty} F_{n+k}^4 x^n = \frac{P_k(x)}{1 - 5x - 15x^2 + 15x^3 + 5x^4 - x^5} \qquad k = 0, 1, 2, 3, 4$$

$P_0(x) = x - 4x^2 - 4x + x^4$

$P_1(x) = 1 - 4x - 4x^2 + x^3$

$P_2(x) = 1 + 11x - 14x^2 - 5x^3 + x^4$

$P_3(x) = 16 + x - 20x^2 - 4x^2 + x^4$

$P_4(x) = 81 - 220x - 244x^2 - 79x^3 + 16x^4$

$$\sum_{n=0}^{\infty} F_{n+k}^5 x^n = \frac{P_k(x)}{1 - 8x - 40x^2 + 60x^3 + 40x^4 - 8x^5 - x^6}$$

$k = 0, 1, 2, 3, 4, 5$

$P_0(x) = x - 7x^2 - 16x^3 + 7x^4 + x^5$

$P_1(x) = 1 - 7x - 16x^2 + 7x^3 + x^4$

$P_2(x) = 1 + 24x - 53x^2 - 39x^3 + 8x^4 + x^5$

(Continued on p. 191)