COMP 7802 _ 1B
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1) a = March 31, 2007
b = April 29, 2007
c
d = 10000
e = 10,094.9564
f = 30,603.2679
g = 20808.8514
h = 1146.5608
i = -8941.5066

~~2) a. EDATE (Start_Date, A21 * 12) (Because of Annual)~~
~~b. EDATE (Start_Date, A31 * 6) (Semi Annual)~~
~~c.~~

2). a. WORKDAY(EDATE (Start_Date, A21 * 12), '',
Holiday!$A$1:$A$56)

b. WORKDAY(EDATE(Start_Date, A31 * 6), 0, Holiday!$A$1:$A$56)

c. Notional_Amount * PayFixed (Annual)

~~c. Notional_Amount * Previous_LIBOR_Fixing * 0.5 (Semiannual)~~
d. 2,500,000
e. Notional_Amount * Previous_LIBOR_Fixing * 0.5
f. (Notional_Amount * Pay_Fixed) * VLookup(B21, discount Factor!A:B, 2, FALSE)
g. -76,173,943
h. 78,033,435
i. 1,859,492

3. a. Δt = OPTION life / Steps

$= 0{,}08333$

$DF = e^{(-r\Delta t)}$

$= 0{,}99792$

$u = e^{(vol \times \sqrt{\Delta T})}$

$= 1{,}05638$

$d = 1/u$

$= 0{,}94663$

$p = \dfrac{e^{(r\Delta t)} - d}{u-d}$

$= 0{,}50529$

b. $V_1 = MAX(S-X, 0)$

$= 9{,}81$

$V_2 = 6{,}04$

$V_3 = 2{,}66$

$V_4 = 0$

$V_5 = DF \times (p V_1 + (1-p) \times V_2)$

$= 7{,}93$

$V_6 = 4{,}36$

$V_7 = 1{,}34$

$V_8 = 6{,}15$

$V_9 = 2{,}86$

$V_{10} = 4{,}51$

Theoretical Price $= P + S_0 - Xe^{-rT}$

$= 4{,}51$

3. c) $d_1 = \dfrac{0.1503 + (0.025 + \frac{0.19^2}{2}) \times 0.25}{0.19\sqrt{0.25}}$

$= 0.1637$

$d_2 = d_1 - 0.19\sqrt{0.25}$

$= 0.0687625$

d) $N(d_1) = 0.434984$
$N(d_2) = 0.472614$

f) For given Period to option expiry a binomial Model will converge to Black-Scholes Model as the number of branches increases.

4. a) $X_t = LN(S_t / S_{t-1})$

$X_1 = LN(35.85 / 40.25)$
$= -0.115766$