Sample problem 17 – Binomial Digital Calls & Puts

Examine the following two-period binomial model:

\[ S_0 = 200 \]
\[ U = 1.1 \]
\[ D = 0.92 \]
\[ R = (1+r) = 1.01 \text{ per period} \]

Present value of $1 to be received at T is \((1+r)^2 = 0.9803\).

\[ S_{UU} = 242.00 \]
\[ S_{UD} = 202.40 \]
\[ S_{DD} = 169.28 \]

Use risk-neutral probabilities to find the following values:

a) Digital Call with exercise price of $200 and Q (digital amount) of $1,000,000

b) Digital Put with exercise price of $200 and Q (digital amount) of $1,000,000.