Module 3 Exercise: Martingales II - Black-Scholes All Over Again

CQF

1. Derive Black's formula for option on a futures step-by-step using slides 97-106 to check your intermediate results.;
2. Applying the Feynman-Kač formula, deduce the boundary value problem (i.e. PDE and terminal condition) satisfied by the value $V(t, f_t)$ of an option on a futures.