Problem 1

Princcpal : 100 mil

Discount rate (OIS) : 2,7%

Fixed rate : 4% semi annually

Floating rate : 2,4% to 3%

Floating payments

First payment $= 100 \cdot mil \cdot \dfrac{2,4\%}{2} = 1,2$ mil

Second payment $= 100 \text{ mil} \cdot \dfrac{3\%}{2} = 1,5$ mil

Fixed payments:

$Payments_{4 month} = \cdot \left(\dfrac{4\%}{2}\right) 100 \text{ mil} = 2 \text{ mil}$

$Payment_{10 month} = \dfrac{4\%}{2} \cdot 100 = 2 \text{ mil}$

Cash flow

$t_4 = 2 \text{ mil} - 1,2 \text{ mil} = 0,8 \text{ mil}$

$t_{10} = 2 \text{ mil} - 1,5 \text{ mil} = 0,5 \text{ mil}$

Discounted cash flow

$t_4 = 0,8 \, e^{-0,027 \cdot 1/3} = 0,793$

$t_{10} = 0,5 \, e^{-0,027 \cdot 5/6} = 0,489$

$PV = 0.793 + 0.489 = 1.282$ mil

Total value of swap for the floating : 1.28 mil
Total value of swap for the fixed : -1.28 mil