

Name : **SOLUTION**

Student ID :

Question 1

You enter into 3 – year interest rate swap to pay a fixed rate .

The notional amount is 10,000.

You're given the following floating rate :

Year	Spot Rate
1	4.00%
2	4.50%
3	5.25%

If the swap has annual payments . What fixed rate should you pay?

$$1 = 1 \cdot R \left(\frac{1}{1.04} + \frac{1}{1.045^2} + \frac{1}{1.0525^3} \right) + \frac{1}{1.0525^3}$$

$$1 = 2.734965 \cdot R + 0.857696596$$

$$0.142303404 = 2.734965 \cdot R$$

$$R = 0.052031161$$

Question 2

A 9% bond with 1000 par value and coupons payable semiannually is redeemable at maturity for 1100.

At a purchase price of P , the bond yield a nominal annual interest rate 8% , compounded semiannually , and the present value of the redemption amount is 190 . Determine P .

$$\text{First } 190 = 1100 \cdot v^n$$

$$190 = 1100 \cdot (1.04)^{-n}$$

$$n = 44.77331607 \approx 45$$

$$Fr = 1000 \cdot \frac{0.09}{2} = 45$$

$$P = 45 \cdot a_{\overline{45}|} + 1100 \cdot v^{45}$$

$$P = 1120.72$$