

1. Correct answer: C.

C is correct. The value of the bond is

$$\begin{aligned} & \frac{2.5}{(1+0.012/2)} + \frac{2.5}{(1+0.012/2) \cdot (1+0.018/2)} + \\ & \frac{2.5}{(1+0.012/2) \cdot (1+0.018/2) \cdot (1+0.023/2)} + \\ & \frac{2.5}{(1+0.012/2) \cdot (1+0.018/2) \cdot (1+0.023/2) \cdot (1+0.027/2)} + \\ & \frac{2.5+100}{(1+0.012/2) \cdot (1+0.018/2) \cdot (1+0.023/2) \cdot (1+0.027/2) \cdot (1+0.030/2)} = \$106.83 \end{aligned}$$

A is incorrect because it treats the forward rates as spot rates.

B is incorrect because it does not divide the forward rates by two.

2. Correct answer: B.

The spot curve, also known as the strip or zero curve, is the yield curve constructed from a sequence of yields-to-maturities on zero-coupon bonds. The par curve is a sequence of yields-to-maturity such that each bond is priced at par value. The forward curve is constructed using a series of forward rates, each having the same time frame.

3. Correct answer: A.

The I-spread, or interpolated spread, is the yield spread of a specific bond over the standard swap rate in that currency of the same tenor. The yield spread in basis points over an actual or interpolated government bond is known as the G-spread. The Z-spread (zero-volatility spread) is the constant spread that is added to each spot rate so that the present value of the cash flows matches the price of the bond.

4. Correct answer: A.

Solution 1: The interest payment each period per 100 of par value is:

$$\frac{(Index + QM) \times FV}{m} = \frac{(0.05 + 0.0125) \times 100}{4} = 1.5625$$

The discount margin can be estimated by solving for DM in the equation:

$$96 = \frac{1.5625}{(1 + \frac{0.05 + DM}{4})^1} + \frac{1.5625}{(1 + \frac{0.05 + DM}{4})^2} + \dots + \frac{1.5625}{(1 + \frac{0.05 + DM}{4})^{20}}$$

The solution for the discount rate, $r = (0.05 + DM)/4$ is 1.8025%. Therefore $DM = 2.21\%$, or 221 bps.

Solution 2: $FV=100$, $PV=-96$, $N=4 \times 5=20$, $PMT=(5\%+1.25\%) \times 100/4=1.5625$, CPT, $I/Y=1.8025$,
 $r=4 \times 1.8025\%=7.21\%$, $DM=7.21\% - LIBOR=2.21\%$.

5. Correct answer: A.

The x -year forward rate y years from now is.

$${}_x f_y = \frac{(1 + Z_{x+y})^{x+y}}{(1 + Z_y)^y} - 1$$

All spot rates are given on a BEY basis and must be divided by 2 in this calculation:

$$0.5f_1 = \frac{(1+0.028/2)^3}{(1+0.021/2)^2} - 1 = 0.021036$$

On a BEY basis, the forward rate is $0.021036 \times 2 = 4.21\%$.