1. Last year, Morgan Stanley acted as a \_\_\_\_\_\_\_\_\_ when it earned profits by means of match-making in an IPO (initial public offering) process between Firm ABC and David, who is a professional investor; as a result, Firm ABC became successfully listed in Shenzhen Stock Exchange. Over the past one year, David has not been satisfied with the performance of Firm ABC, and hence, he just sold all his stocks in Firm ABC to different investors; this transaction of ownership transfer is taking place in \_\_\_\_\_\_\_\_

(A) Financial broker, Primary market

(B) Financial intermediary, Primary market

(C) Financial broker, Secondary market

(D) Financial intermediary, Secondary market

2. Stephan plans to sell his house as he needs funds immediately to pay for his wife’s surgery expense. However, given that his house is a fairly expensive item, he finds it difficult to find potential buyers of the house. In that case, he is thinking about selling his house at a much cheaper price. The issue described is mostly likely to be associated with which of the following?

(A) Default  
(B) Maturity  
(C) Liquidity

3. You have $100 today and you plan to deposit this amount over the next 2 years into a bank account that gives an Annualized Percentage Rate (APR) of 12%. Compute how much money you will have at the end of Year 2.

a) when interests are compounded annually

100\*(1.12)^2 = $125.44

b) when interests are compounded semi-annually

100\* (1.06)^4= $126.25

c) when interests are compounded monthly

100\* (1.01)^24 = $126.97

4. Mr. Lucky has just won a lottery. In terms of receiving the amount, he has two choices:   
A) receiving $15,000 today   
B) receiving $1,000 per year for 30 years. The first payment starts two years from today

If the appropriate discount rate is 5% per year, which choice should he take?

Choice A)

PV of receiving $15,000 today is simply $15,000

Choice B)

This is an annuity.

PV at time 1 = 1000/0.05\*(1-1/1.05^30) = $15,372  
However, $15,372 is the value of the annuity at Year 1, NOT at Year 0.   
Thus, we need to discount this amount one more time.

PV at time 0 = (PV at time 1) / 1.05 = 15372/1.05 = $14,640

$14,640 < $15,000.

Thus, Mr.Lucky should choose Choice A.

5. You will receive a yearly salary of $100,000 from your current employer over the next five years; your first payment starts a year from today and the last payment comes at the end of the fifth year, at which point you will resign. While you are employed, you will contribute 1% of your salary to your pension fund every year. If the pension fund provides a yearly return of 2%, what is your final wealth in the pension fund at the end of the fifth year? Assume there is no tax.

The type of cashflow is annuity with the size of payment being 1% of annual salary.

Yearly payment = 0.01\*100,000 = 1,000

PV = 1000/0.02\*(1-1/(1.02)^5) = 4713.46

FV = 1.02^5 \*PV = 5204.04

Hence, the pension fund account should have $5204.04 at the end of the fifth year

6. Mr. Auto is financing the purchase of a new car by borrowing from a financing company. The price of the car is $50,000. The Annualized Percentage Rate (APR) is 8% per year, and he will make semi-annual payments over the next 3 years to pay back the debt.

a) How much will Mr. Auto pay to the financing company every 6 month?

The reference time horizon is 6 months, and thus, the discount rate is 4% per every 6 month.   
Also, there are 6 periods of 6 months in 3 years.

PV = C/r\*(1-1/(1+r)^T))

50000 = C /0.04 \*(1-1/1.04^6))

Hence, C = $9,538 and Mr. Auto pays $9,538 every 6 month.

b) Mr. Auto wants to construct an amortization schedule. How much principal payment will Mr. Auto make in the first six months?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Installment Payment | Interest Expense | Principal Payment | Ending Balance |
|  |  |  |  | 50000 |
| Period 1 | 9538 | 2000 | 7538 | 42462 |
| Period 2 | 9538 | 1698 | 7840 | 34622 |
| Period 3 | 9538 | 1385 | 8153 | 26469 |
| Period 4 | 9538 | 1059 | 8479 | 17990 |
| Period 5 | 9538 | 720 | 8819 | 9171 |
| Period 6 | 9538 | 367 | 9171 | 0 |

Mr. Auto will make principal payment of $7538 in the first six months.

Note that each period corresponds to 6 months.