**NAME = M. Ashraf**

**ID = 15240**

**Subject = BUSINESS FINANCE**

**Teacher = Maryam Saleem**

**Program = BBA**

**EXAM = Mid Term**

**Q1. (a) Ali deposited $2000 in a savings account. The annual interest rate is 8 percent, compounded semiannually. How many years will it take for his money to grow to $4765? (5 marks)**

**Q1. (b) A payment of $100 per year forever is made with a discount rate of 10 percent. What is the present value of these payments?**

**Answer:**

**PART (A)**

PV=2000

FV=4765

K=8%

=4%

PV=FV \* PV1 F (K, n)

2000=4765\*PV1 F (4%, n)

2000/4765= PV1 (4%, n)

0.4197271773=PV1 (4%, n)

Checking 0.4197271 in present values table under 4%

0.419=**0.42**

**n=22years**

**PART (B)**

PMT=100

I=0.1

PVP=?

PVP=PMT \*1/I

=100\*1/0.1

=100\*10

**PVP=1,000**

**Q.2 (a) Briefly explain the difference between real rate of interest and nominal interest rate with an example.**

**(b) Being an investor which market will you prefer, security exchanges or over-the-counter market? And why?**

**Answer:**

**Part (A)**

**Real interest rate**

**A real interest rate is an interest rate that has been adjusted to remove the effects of the inflation to reflect the real cost of funds to the borrowers and the real yield to the lender or to an investor.**

**Left opportunity so you can change.**

**Normal interest rate**

**A normal interest rate refers to the interest rate before taking inflation into account.**

**Nominal can also refer to**

**The advertised or stated interest rate on a loan, without taking into account any fees or compounding of interest.**

**Differences between Nominal vs Real Interest Rates**

**(1)As discussed earlier, the nominal interest rate is the market rate of return/interest which will be earned by/charged to the customer, while the real interest rate is the effective rate which an investor will realize.**

**(2)The nominal interest rate has no effect of inflation incorporated in it while the real interest rate is calculated after removing the inflation effect.**

**(4)Bank interest rates, loan interests, etc. all are nominal interest rates. Real interest rates are basically derived from nominal rates.**

**(4)A real interest rate is basically based on the principle of time value of money, inflation, etc. will change the value of money continuously with time, this effect will get captured in real rates. No such adjustments happen in nominal rates.**

**(5)A nominal rate cannot be negative and can only go down to 0% while the real rate can be negative. For example: If the nominal rate in the market is 3% but inflation itself is 5%, effectively, the investor will lose money and will have a negative real interest rate.**

**Example of real interest rate**

Nominal interest rate-inflation rate

To find real interest we take the nominal interest rate and subtract the inflation rate.

If a loan has a 12 percent interest rate and the inflation rate is 8 percent, then the real return on that loan is 4 percent.

**Example of nominal interest rate**

Car loan available at 10% of interest rate the face an interest rate of 10% is the nominal rate. It does not take fees or their charges in an account.

PART (B)

Being an investor I would like to prefer over the counter market Because (OTC) market is decentralized market in which market participants trade stocks, commodities currencies or other instruments directly between two parties and without a central exchange or broker. In an OTC market, dealer act as market-makers by quoting prices at which they will buy and sell a security, currency, or other financial products.

A trade can be executed between two participants in an OTC market without others being aware of the price at which the transaction was completed. OTC market are typically less transparent then exchange and are also subject to fewer regulations. Being an investor, I would like to prefer over counter market.

**Q3:(a) Calculate the present valve of $40,000 to be received fifteen years from now at an annual discount rate of 10 percent.**

**(b) Give two daily life examples of ordinary annuity and annuity due and briefly explain why they are been categorized as either.**

**Answer:**

**Part (A)**

FV= 40,000

n= 15

k=0.1

PV= FV/(1+k) n

=40,000/ (1+0.1)15

=40,000/ (1.1)15

=40,000/4.177248169

**9575.681975**

**Part (B)**

**Example of ordinary Annuity**

1. **Home mortgages,**

For which the home owner makes payment at the end of each month.

1. **Income annuity**

such as the life time annuity noted above which also typically make payments at the end of each month.

1. **Dividend payments**

Which or typically paid at each quarter.

**Example of annuity due**

1. Common example of an annuity due payment is rent, paid at the beginning of each month.
2. Many monthly bills, such as rent, mortgagees, car payments and cellphones payment are annuities due because the beneficiary must pay at the beginning of the billing period.

Since payments are made sooner with an annuity due than with an ordinary annuity, an annuity due typically has a higher present value than an ordinary annuity.

When interest rate goes up, the value of an ordinary annuity goes down other hand, when interest rates fall, the value of an ordinary annuity goes up, so that’s why it has been categorized.