Fast School of Business

Quiz# 1

Name: _____ **Roll #** _____

Instructor: Shakeel Ahmed **Date: 23/02/2012**

Course Title: Business Finance

Question No 1

It will cost $15,500 a year for 6 years when an 7-year old child is ready for college. How much should be invested today if the child will make the first of six annual withdrawals 12-years from today? The expected rate of return is 7%.

A) $73,881.36
B) $32,804.20
C) $35,101,36

Answer 1

First, find the present value of the college costs as of the end of year 9. (Remember that the PV of an ordinary annuity is as of time = 0. If the first payment is in year 10, then the present value of the annuity is indexed to the end of year 9). N = 6; I = 7%; PMT = 15,500; CPT → PV = $73,881.36.

Second, find the present value of this single sum: N = 11; I= 8%; FV = 73,881.36; PMT = 0; CPT → PV = 35,101.25

Question No 2

Michel Banks just won the lottery and is trying to decide between the annual cash flow payment option or the lump sum option. He can earn 6.5% at the bank and the annual cash flow option is $90,000/year, beginning today for 13 years. What is the annual cash flow option worth to Banks today?

A) $773,976.78
B) $824,285.27
C) $204,073.87.

Answer No 2

Correct Answer B)

This question is of present value of Annuity Due.

N = 13; I = 6.5%; PMT = 90,000; CPT → PV = 824,285.27

Question No 3

A neurosurgeon at a large Pakistan university, was recently granted permission to take an 30-month sabbatical that will begin one year from today. During the sabbatical, Asim will need $3,700 at the beginning of each month for living expenses that month. Her financial planner estimates that she will earn an annual rate of 8% over the next year on any money she saves. The annual rate of return during her sabbatical term will likely increase to 11%. At the end of each month during the year before the sabbatical, Asim should save approximately:

A) $7,756.79
B) $7,100.86
C) $7,850.91

Answer No 3

Step 1: Calculate present value of amount required during the sabbatical

Using a financial calculator: Set to BEGIN Mode, then N = 12 × 2.5 = 30; I = 11%=> 0.00916; PMT = 3,700; FV = 0; CPT → PV = 97,556.06

Step 2: Calculate amount to save each month

Make sure the calculator is set to END mode, then N = 12; I/Y = 8% =>.0066 ; PV = 0; FV = 97,556.06; CPT → PMT = 7842.12

Question No 4

If 10 equal annual deposits of $2,000 are made into an investment account earning 7% starting today, how much will you have in 20 years?

A) $29567.19
B) $27,637.58
C) $58,162.76.

Answer No 4

Correct Answer: C

PMT = 2,000; N = 10, I = 7%, PV = 0; CPT → FV = 29,567.19. Remember the answer will be one year after the last payment in annuity due FV problems. Now PV_{10} = 29,567.19; N = 10; I = 7%; PMT = 0; CPT → FV = 58163.15

Question No 5

What is the present value of a 8-year, $200 annual annuity due if interest rates are remained same?

A) No solution.
B) $1,728
C) $1,600

Answer No 5

Answer C

= 8 * 200

= 1600

Question No 6

If $2,500 were put into an account at the end of each of the next 10 years earning 15% annual interest, how much would be in the account at the end of ten years?

A) $41,965.
B) $27,461.
C) $50,759.

Answer No 6

Future Value of annuity

Correct Answer: C

N = 10; I = 15; PMT = 2,500; CPT → FV = $50,759.

Question No 7

Peter Wallace wants to deposit $10,000 in a bank certificate of deposit (CD). Wallace is considering the following banks:

- Bank A offers 5.85% annual interest compounded annually.
- Bank B offers 5.75% annual interest rate compounded monthly.
- Bank C offers 5.70% annual interest compounded daily.

Which bank offers the highest effective interest rate and how much?

A) Bank B, 5.90%.
B) Bank A, 5.85%.
C) Bank C, 5.87%.

Answer No 7

Answer: B

Effective interest rates:

Bank A = 5.85 (As it is already annual compounding)

Bank B, nominal = 5.75; I = 12; effective interest rate= 5.90

Bank C, nominal = 5.70, i = 365; effective interest rate = 5.87

Question No 8

In 10 years, what is the value of $100 invested today at an interest rate of 8% per year, compounded monthly?

A) $216.

B) $222.
C) $180.

Answer No 8

Correct Answer B

N = 10 × 12 = 120; I/Y = 8/12 = 0.666667; PV = –100; PMT = 0; CPT → FV = 221.96.

Question No 9

An investor has the choice of two investments. Investment A offers interest at 6.75% compounded quarterly. Investment B offers interest at the annual rate of 8.40%. Which investment offers the *higher* dollar return on an investment of $80,000 for three years, and by how much?

A) Investment B offers a $4,109.41 greater return.
B) Investment B offers a $4,581.89 greater return.
C) Investment A offers a $4,512.28 greater return.

Answer No 9

Correct Answer: A

Investment A: I = (6.75% / 100) / 4; N = 3 × 4 = 12; PV = $80,000; PMT = 0; CPT → FV = $97,791.43
Investment B: I = 8.40%; N = 3; PV = $80,000; PMT = 0; CPT → FV = $101,900.85
Difference = investment B offers a $4109.41 greater dollar return.

Question No 10

Find the future value of annuity due using the information given below.

Amount of annuity	Interest rate	Deposit period (years)
6,000	14	30

A) 2,440,422.03
B) 2,140,721.10
C) 2,540,650.08

Answer No 10

Correct Answer: A

$FVA_{14\%,30\ (due)}$= $6,000 x (356.787) x (1.14)

$FVA_{14\%,30\ (due)}$ = $2,440,422.03

Question No 11

An investor will receive an annuity of $5,000 a year for seven years. The first payment is to be received 5 years from today. If the annual interest rate is 11.5%, what is the present value of the annuity?

A) $15,000.
B) $13,453.

C) $23,185.

Answer No 11

Correct Answer: A

PMT = 5,000; N = 7; I = 11.5%; value (at t = 4) = 23,185.175. Therefore, PV (at t = 0) = 23,185.175 / $(1.115)^4$ = $15,000.68.

Question No 12

What is the annual percentage yield of a account that pays .8% per month?

A) 8%
B) 110.09%
C) 10.03%

Answer No 12

Correct Answer: C

APY = ((1 + .008)^12) – 1

= 1.1003 – 1

= .1003 * 100

= 10.03%

Question No 13

Ali has 1,500 to invest, and his investment counsler suggests an investment that pays no stated interest but will 2000 at the end of 3 years, what annual rate of return will Ali earn with this investment?

A) 10.50
B) 10.06
C) 10.80

Answer No 13

Correct Answer: B

It Can also be solved by hit and trial method

PV = $2,000 X ($PVIF_{i\%,3yrs.}$)

$1,500 = $2,000 x ($PVIF_{i\%,3\ yrs.}$)

.75 = $PVIF_{i\%,3\ yrs.}$

I = 10.06%

Question no 14

Asim has 25,000 to invest, If Asim earns 7% interest on the deposit then how long will it take for him to double his money?

A) 10.27
B) 9.58
C) 10.78

Answer No 14

Correct Answer: A

50,000 = $25,000 x ($FVIF_{7\%,n\ yrs.}$)

2 = $FVIF_{7\%,n\ yrs.}$

N = 10.25

Question No 15

Alvi is shopping for a used car. He has found one priced at $5,500. The dealer has told Alvi that if he can come up with a down payment of $500, the dealer will finance the balance of the price at a 12% annual rate over 2 years . Assuming that Alvi accepts the dealer's offer, what will his *monthly* (end-of month) payment amount be?

A) 235.35
B) 270.80
C) 298.54

Answer No 15

Correct Answer: A

PMT= $5,000 ÷ ($PVIFA_{1\%,24}$)

PMT= $5,000 ÷ (21.243)

PMT= $235.35

Question No 16

You have decided to endow your favourite university with a scholarship. It is expected to cost $6,000 per year to attend the university into perpetuity. You expect to give the university the endowment in 10 years and will accumulate it by making equal annual (end-of-year) deposits into an account.
The rate of interest is expected to be 10% for all future time periods.
Part 16.1

How large must the endowment be?

A) 60,000
B) 16,422
C) 45,000

Answer No 16.1
Correct answer: A

=PMT x (1 ÷ i)

=$6,000 x (1 ÷ .10)

=$6,000 x 10

=$60,000

Part 16.2

How much must you deposit at the end of each of the next 10 years to accumulate the required amount?

A) 3840.54
B) 3764.72
C) 4200.08

Answer No 16.2

Correct answer: B

PMT = FVA ÷ ($FVIFA_{10\%,10}$)

PMT = $60,000 ÷ (15.937)

PMT = $ 3,764.72

Question No 17

A person borrows $200 to be repaid in 8 years with 14% annually compounded interest. The loan may be repaid at the end of any be arlier year with no prepayment penalty**.** What amount is due at the end of the eighth year?

A) $228
B) $337.79
C) $570.52

Answer No 17

Correct Answer: C

FV= PV x ($FVIF_{14\%,8}$)

FV= $200 x (2.853)

FV= $570.52

Question No 18

Ali borrowed $15,000 at a 14% annual rate of interest to be repaid over 3 years. The loan is amortized into three equal, annual, end-of-year payments.

Part 18.1
Calculate the annual, end-of-year loan payment.

A) $6700.80
B) $6460.97
C) $6907.50

Answer No 18.1
Correct answer : B

PMT = $15,000 ÷ ($PVIFA_{14\%,3}$)

PMT = $15,000 ÷ 2.322
PMT = $6,460.97

Part 18.2

What will be the interest payment in second year?

A) $2100.00
B) 4970.34
C) 1489.61

Answer No 18.2
Correct Ans: C

End of Year	Loan Payment	Beginning of Year Principal	Payments Interest	Payments Principal	End of Year Principal
1	$ 6,459.95	$15,000.00	$2,100.00	$4,359.95	$10,640.05
2	$ 6,459.95	10,640.05	1,489.61		