Towson University
Department of Finance
Fin331
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NAME: _____
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1. Your bank account pays an 8% nominal rate of interest. The interest is compounded quarterly. Which of the following statements is CORRECT?

a. The periodic rate of interest is 2% and the effective rate of interest is 4%.
b. The periodic rate of interest is 8% and the effective rate of interest is greater than 8%.
c. The periodic rate of interest is 4% and the effective rate of interest is less than 8%.
d. The periodic rate of interest is 2% and the effective rate of interest is greater than 8%.
e. The periodic rate of interest is 8% and the effective rate of interest is also 8%.

Answer: d

2. What is the coefficient of variation for security a?

	Probability	Ra(State=?)	Rb(State=?)
Boom	35%	0.30	0.06
Average	40%	0.10	0.06
Recession	25%	--0.15	-0.05

a. 1.00
b. 1.25
c. 1.36
d. 1.65
e. 1.90

Answer: d or e

	Probability	Ra (state=?)	Pi*Ri	Ra-E(Ra)	{Ra-E(Ra)}^2	[{Ra-E(Ra)}^2]*Pi
Boom	35%	0.30	0.1050	0.2005	0.040200	0.014070
Average	40%	0.08	0.0320	-0.0195	0.000380	0.000152
Recession	25%	-0.15	-0.0375	-0.2495	0.062250	0.015563
		E(Ra)	0.0995		Variance	0.029785
Standard deviation (σ) = Square root (Variance; σ^2)) =			0.1726			
Coefficient of variation = σ / E(Ra) =			1.7345			

3. You want to quit your job and go back to school for a law degree 4 years from now, and you plan to save $6,400 per year, beginning immediately. You will make 4 deposits in an account that pays 5.7% interest. Under these assumptions, how much will you have 4 years from today?

a. $22,980.31
b. $22,685.69
c. $26,221.12
d. $29,461.93
e. $31,524.26

Answer: d

BEGIN Mode

N	4
I/YR	5.7%
PV	$0.00
PMT	$6,400
FV	$29,461.93

Alternative setup:

0	1	2	3	4
$6,400	$6,400	$6,400	$6,400	

NFV = $29,461.93

4. Which of the following investments would have the highest future value at the end of 10 years? Assume that the effective annual rate for all investments is the same and is greater than zero.

a. Investment A pays $250 at the beginning of every year for the next 10 years (a total of 10 payments).
b. Investment B pays $125 at the end of every 6-month period for the next 10 years (a total of 20 payments).
c. Investment C pays $125 at the beginning of every 6-month period for the next 10 years (a total of 20 payments).
d. Investment D pays $2,500 at the end of 10 years (just one payment).
e. Investment E pays $250 at the end of every year for the next 10 years (a total of 10 payments).

Answer: a

A dominates B because it provides the same total amount, but it comes faster, hence it can earn more interest over the 10 years. A also dominates C and E for the same reason, and it dominates D because with D no interest whatever is earned. We could also do these calculations to answer the question:

	PV		Interest		# PMT	Each PMT
A	$4,382.79	**Largest**	EFF%	10.00%	10	250
B	$4,081.59		NOM%	9.76%		125
C	$4,280.81					125
D	$2,500.00					2500
E	$3,984.36					250

5. Your uncle has $300,000 invested at 7.5%, and he now wants to retire. He wants to withdraw $35,000 at the end of each year, starting at the end of this year. He also wants to have $25,000 left to give you when he ceases to withdraw funds from the account. For how many years can he make the $35,000 withdrawals and still have $25,000 left in the end?

a. 14.21
b. 14.96
c. 15.71
d. 16.49
e. 17.32

Answer: b

I/YR	7.50%
PV	$300,000
PMT	$35,000
FV	$25,000
N	14.96

6. Suppose you just won the state lottery, and you have a choice between receiving $2,550,000 today or a 20-year annuity of $250,000, with the first payment coming one year from today. What rate of return is built into the annuity? Disregard taxes.

a. 7.12%
b. 7.49%
c. 7.87%
d. 8.26%

e. 8.67%
Answer: b

N	20
PV	$2,550,000
PMT	$250,000
FV	$0.00
I/YR	7.49%

7. Which indenture provision may affect the price of the bond differently?

a. convertibility
b. sinking fund
c. call
d. restrictions on dividends
e. collateral
Answer: c
Investors do not like a call provision => they want to pay less or expect a higher return. What about other indenture provisions? All others are advantageous to investors

8. Suppose 1-year Treasury bonds yield 4.00% while 2-year T-bonds yield 4.80%. Assuming the pure expectations theory is correct, and thus the maturity risk premium for T-bonds is zero, what is the yield on a 1-year T-bond expected to be one year from now?

a. 5.61%
b. 5.72%
c. 6.22%
d. 5.44%
e. 6.11%
Answer: a

$r_{1\text{-year}}$	4.00%
$r_{2\text{-year}}$	4.80%
$r_{1\text{-year}}$ 1 year from now	X in the equation $(1.04)(1 + X) = (1.048)^2 = 1.0983$
$X = (1.048)^2/(1.040) - 1.0 = r_{1\text{-year}}$ in 1 year	5.61%

9. Which of the following factors would be most likely to lead to an increase in nominal interest rates?

a. Households reduce their consumption and increase their savings.
b. A new technology like the Internet has just been introduced, and it increases investment opportunities.
c. There is a decrease in expected inflation.
d. The economy falls into a recession.
e. The Federal Reserve decides to try to stimulate the economy.
Answer: b

If the new technology were so efficient that it takes an underdeveloped economy from a subsistence level, where savings are necessarily low and rates high, to a level where people can afford to save, this might cause interest rates to decline. However, it would take time for this to occur.

10. Susie Orman argues that you can have more money by saving $100 each month (starting at the end of this month for 12 deposits) instead of saving a large lump-sum amount of $1,200. To show what she claims may not be necessarily true, you are going to compare saving $100 every month for a year vis-à-vis $1,200 at the **beginning** of the year. How much extra will you have at the end of the year by saving $ 1,200 at the beginning of the year instead of saving $100 each month at the end of each month. Use 6% interest rate.

a. $35.51