

These multiple choice questions (1-10) are worth 3 points each.

Q1. Which of the following amounts is closest to the end value of investing \$7,500 for 2 1/2 years at an effective annual interest rate of 12.36%? Interest is compounded semiannually.....

- A) \$7,531.
- B) \$8,427.
- C) \$9,818.
- D) \$9,469.
- E) \$10,037**

Q2. The value of a 20 year zero-coupon bond when the market required rate of return of 9% (with semi-annual compounding) is:

- A) \$414.64
- B) \$318.38
- C) \$171.93**
- D) \$178.43
- E) None of the above.

Q3. Which of the following bonds' price would be the most sensitive to an unexpected change in the interest rate? (The market interest rate is 8% (EAR) for all the bonds below.)

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- A). A discount (or zero coupon) bond with 7 years to maturity.
 - B). A discount (or zero coupon) bond with 10 years to maturity.**
 - C). A bond with annual coupons, a 5% coupon rate and 7 years to maturity.
 - D). A bond with semi-annual coupons, a 10% coupon rate and 7 years to maturity.
 - E). A bond with annual coupons, 10% coupon rate 10 years to maturity.

Q4. Your project has following Cashflows:

Time	0	1	2	3	4
Cashflow	- 25,000.00	5,000.00	10,000.00	35,000.00	- 5,000.00

The reinvestment rate is 10% and refinancing rate is 15%. What is MIRR?.....

- A).19.73%**
- B).19.14%
- C).21.08%
- D).21.68%

Q5. Which of the following is not a relevant consideration for evaluating new projects?

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- A) The change in the firm's fixed costs.
 - B) The change in the firm's variable costs.
 - C) The change in the firm's depreciation expense.
 - D) The change in the firm's overhead expense.
 - E) All of the above are relevant.**

Q6. The model, $P_t = P_{t-1} + \text{Expected Return} + \text{Random error}$, supports the weak form of the efficient market hypothesis if:

- A) The random error can be predicted by past prices.
- B) There is correlation between random errors period to period.
- C) The random errors are unrelated from one period to the next period.
- D) The expected return is not based on the security's risk.
- E) None of the above.

Q7. The Albatross Co. has accumulated net operating losses of \$70 million and is likely to enter bankruptcy. The Zephyr Co. has earnings of \$200 million and is in the 36% marginal tax bracket. Zephyr is considering buying Albatross and liquidating the company and retaining a few of the assets. What is the minimum value of Albatross to Zephyr?

- A) \$25.2 million.
- B) \$72.0 million.
- C) \$70.0 million.
- D) Not enough information to calculate.
- E) None of the above.

Q8. Firm A is going to acquire Firm B by selling bonds and using the proceeds to purchase (for cash) the stock of Firm B. What is the appropriate discount rate for use in valuing the benefits of the merger?.....

- A) Firm A's cost of debt.
- B) Firm A's weighted average cost of capital.
- C) Firm A's cost of equity.
- D) Firm B's weighted average cost of capital.
- E) None of the above.

Q9. Your company has announced a dividend of \$2.50 per share. You and the rest of the investors are in the 35% tax bracket. What should happen to the stock price?

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- A) The price of stock should decrease by \$1.625 immediately after the date of record.
 - B) The price of stock should decrease by \$1.625 immediately after the ex-dividend date.
 - C) The price of stock should decrease by \$3.85 immediately after the date of record.
 - D) The price of stock should decrease by \$3.85 immediately after the ex-dividend date.
 - E) The price of stock should decrease by \$2.50 immediately after the ex-dividend date

Q10. What is its cost of equity if there are no taxes or other imperfections? The firm has a debt-to-equity ratio of .60. Its cost of debt is 8%. Its overall cost of capital is 12%.

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- A) 18%
 - B) 14.4%
 - C) 10%.
 - D) 13.5%
 - E) None of the above.

These multiple choice questions (11-15) are worth 2 points each.

Q11.

Compensation paid to top management in the event of a takeover is called a:

- A) Poison pill.
- B) **Golden parachute.**
- C) Self-tender.
- D) Buyout.
- E) None of the above.

Q12. Under the _____ method, the underwriter buys the securities for less than the offering price and accepts the risk of not selling the issue, while under the _____ method; the underwriter does not purchase the shares but merely acts as an agent.

- A) Best efforts; firm commitment
- B) **Firm commitment; best efforts**
- C) General cash offer; best efforts
- D) competitive offer; negotiated offer
- E) seasoned; unseasoned

Q13. Two important elements of the dividend policy irrelevance proposition are:.....

- A) All investors have homogeneous dividend needs and time horizons.
- B) Dividends are paid even if a positive NPV opportunity exists and investors can re-arrange their own dividend streams.
- C) **Investors can re-arrange their own dividend streams and the investment policy is set and unaltered by the change in dividend policy.**
- D) All investors have homogeneous dividend needs and dividends are paid even if a positive NPV opportunity exists.
- E) Investors can re-arrange their own dividend streams and the source of financing must be debt.

Q14. Growth opportunities _____ the _____ of debt financing.

- A) Increase; advantage
- B) **Decrease; advantage**
- C) Decrease; disadvantage
- D) Both A and C.
- E) None of the above.

Q15. You are to receive \$75 per year indefinitely. The market rate of interest for these types of payments is 8%. The price you would pay for this stream is:.....

- A) \$ 9.375
- B) \$ 81.00
- C) \$ 93.75.
- D) **\$937.50.**
- E) None of the above.

Problem 1:

Sandy's Inc is considering the purchase of new manufacturing equipment for an existent line of products. The cost of the new equipment is \$85,000. The use of this equipment is expected to reduce manufacturing costs by \$8,000 annually. The machine belongs to asset class 43 with a CCA rate of 30%, and Sandy's Inc expects to sell the machine at the end of its 5-year operating life for \$15,000. **The firm expects that the new machine will require a \$12,000 investment in net working capital. After that, starting with year 1, the NWC related to the project will increase by 5% every year.** The required working capital will be recaptured when the machine is sold after 5 years. Sandy's Inc's marginal tax rate is 34%, and it uses a 10 percent cost of capital to evaluate projects of this nature.

What is NPV of this project?

Year	0	1	2	3	4	5
$S_t - E_t$		8,000.00	8,000.00	8,000.00	8,000.00	8,000.00
$(S_t - E_t) \cdot (1 - T_c)$		5,280.00	5,280.00	5,280.00	5,280.00	5,280.00
CF from Changes in NWC:	12,000.00	12,600.00	13,230.00	13,891.50	14,586.08	15,315.38
Changes in NWC	-12,000.00	-600.00	-630.00	-661.50	-694.58	-729.30
NWC recuperated						15,315.38
Investment	-85,000.00					15,000.00
Total Cash Flow	-97,000.00	4,680.00	4,650.00	4,618.50	4,585.43	34,866.08
Present Value Calculation		Present values of annual cash flows				
Types of Cash Flow		PV of Year 1 CFs	PV of Year 2 CFs	PV of Year 3 CFs	PV of Year 4 CFs	PV of Year 5 CFs
PV of CFs except CCA	-97,000.00	4,254.55	3,842.98	3,469.95	3,131.91	21,649.09
PV of CFs exc. CCA, TOTAL:	-60,651.54					
PV of CCA Tax Shield (A - B)	18,314.77					
NPV	<u>-42,336.76</u>					

Problem 2.

Firm A does well in a boom economy. Firm B does well in a bust economy. The probability of a boom is 50%. The end of period values of the two firms depend on the economy as shown below:

<u>Economy</u>	<u>Probability</u>	<u>Value of A</u>	<u>Value of B</u>
Boom	.5	\$1,600	800
Bust	.5	<u>800</u>	<u>2,000</u>
Expected Value		\$1,200	\$1,400

Both firms have debt outstanding with a face value of \$1,000. In order to diversify, the two firms have proposed a merger. The NPV of the merger is zero. Determine the gain or loss under each state of economy for the stockholders of A and B separately and for the combined firm AB. Should either the stockholders or bondholders be willing to support the merger (prove and state why)?

Solution:

Payoff to Shareholders:	<u>Boom</u>	<u>Bust</u>
A	$\$1,600 - 1,000 = 600$	$\$800 - 800 = 0.00.$
B	$800 - 800 = 0$	$\$2,000 - 1,000 = 1,000.$
AB	$2,400 - 2,000 = 400$	$2,800 - 2,000 = 800.$
Loss to shareholders:	of A = 200	of B = 200.

Neither shareholders will want to support the merger but bondholders would as their risk is lower and potential gain is \$200.00.

Problem 3.

Given the following information, leverage will add how much value to the unlevered firm per dollar of debt?

Corporate tax rate: 34%

Personal tax rate on income from bonds: 30%

Personal tax rate on income from stocks: 30%

Compare your results with M&M proposition with taxes. Explain your results.

It will be 0.34. They should use the equation:

$$1 - (1 - T_c) * (1 - T_s) / (1 - T_b)$$

Both give the same result because $T_b = T_s$

Problem 4.

Suppose Gordon Inc. will pay \$1.5 per share in dividends in one year (i.e. $D_1 = \$1.5$), and dividends are expected to increase at 3% per year forever. You hold 5,000 shares but instead of receiving \$7,500 in dividends next year, you would like to receive two identical payments at $t = 1$ and $t = 2$ and you also want to reduce your holding of Gordon shares to zero by the end of the second year (i.e. you will sell any remaining Gordon Inc. shares at $t = 2$.) Assume that the required rate of return on Gordon equity is 9%.

a. How big should the two homemade dividends be?

$$P_0 = 1.5 / (0.09 - 0.03) = 25$$

$$\text{Total Investment} = 25 * 5,000 = 125,000$$

$$125,000 = C / 0.09 * (1 - 1 / 1.09^2)$$

$$C = \$71,058$$

b. How many Gordon Inc. shares will you need to buy or sell in one year (i.e. at $t = 1$) in order to achieve your desired (“homemade”) dividend policy? (**Reminder:** indicate whether you will buy or sell!)

$$P_1 = 25 * 1.03 = 25.75$$

Need $\$63,558.61 = 71,058 - 5,000 * 1.5$ from sale of shares. Therefore you have to sell $63,558.61 / 25.75 = 2,468.3$ shares

Question 5.

- a) Motors (GM) Inc wants to undertake a new project. It will cost \$550 dollars today. The project will generate \$100.00 forever. What is the NPV of this project? Appropriate discount rate is 20%.

$$=-550+100/0.2=-50$$

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- a) Suppose after one year, the new information will arrive and GM will either have a cashflow of \$50 or \$ 150 forever with equal probability. After one year, you can abandon the project if NPV is negative. If you decide to abandon the project after one year, you will realize \$400 as salvage value. What is value of this option?

$$PV = -550 + 100/1.20 + 1/1.20 * (0.5 * 400 + 0.5 * 150/0.20) = 12.50$$

$$\text{Value of Option} = 12.50 - (-50) = 62.50$$

Question 6.

a) Describe the three basic legal procedures that one firm can use to acquire another and briefly discuss the advantages and disadvantages of each.

The three forms are merger, acquisition of stock, and acquisition of assets. A merger has the advantage that it is legally simple and therefore low cost but it has the disadvantage that it must be approved by the shareholders of both firms. Acquisition by stock requires no shareholder meetings and management of the target firm can be bypassed. However, it can be a costly form of acquisition and minority shareholders may hold out, thereby raising the cost of the purchase. An acquisition of assets requires the vote of the target firm's shareholders. However, it can become quite costly to transfer title to all of the assets.

- b) The empirical evidence strongly indicates that the stockholders of the target firm realize large wealth gains as a result of a takeover bid but the stockholders in the acquiring firm gain little, if anything. Although there exists no definitive answer as to why this is the case, several possible explanations have been proposed. List and explain three of these possible explanations for the minimal returns to the acquiring firm's stockholders.

Size differentials, competition in the takeover market, lack of achieving merger gains, management goals other than the best interests of the shareholders, and early announcements of corporate acquisition intent are all presented as possible explanations in the textbook.