NATIONAL UNIVERSITY OF SINGAPORE

Semester 2 (2009/2010) Examinations

FIN2004 FINANCE

May 2010 - Time Allowed 2 Hours

INSTRUCTIONS TO CANDIDATES

1. This examination paper contains **TWO (2) sections** and comprises **ELEVEN (11)** printed pages. **ATTEMPT ALL QUESTIONS.**

2. Students are required to write their answers in the answer booklets and answer sheet provided.

3. This is an Open Book examination.

Section 1: Multiple Choice Questions (25 X 2 = 50 marks)

Use the answer sheet provided. Select the most appropriate answer.

1. A project is expected to produce equal annual cash flows of $16,883 a year for five years after the initial investment. If the required rate of return is 10%, at what maximum investment level will the project add value to the firm?

   A. The initial investment must be less than $84,415
   B. The initial investment must be less than $64,000.
   C. The initial investment must be less than $79,812.
   D. The initial investment must be less than $97,218.
   E. This cannot be determined without knowing the internal rate of return of the project.

2. A stock is selling for $64.10. A put option on the stock has a strike price of $65. This option is

   A. At-the-money.
   B. In-the-money.
   C. Of-the-money.
   D. On-of-the-money.
   E. Out-of-the-money.

3. A stock you are interested in paid a dividend of $1 last year. The anticipated growth rate in dividends and earnings is 25% for the next 2 years before settling down to a constant 5% growth rate. The discount rate is 12%. Calculate the expected price of the stock.

   A. $15.38
   B. $20.50
   C. $21.05
   D. $22.27
   E. $26.14

4. The Bolt Company made a credit sale of $15,000. The invoice was sent today with the terms, 3/15 net 60. This customer normally pays at the net date. If the effective annual opportunity cost of funds is 9% and taking 1 year as equivalent to 365 days, the expected payment is worth how much today?

   A. $13,761
   B. $14,789
   C. $15,000
   D. $15,214
   E. None of the above.

5. The internal rate of return evaluation technique assumes that the cash flows can be reinvested at
   A. The firm's cost of capital
   B. The risk-free rate of interest.
   C. The project's hurdle rate.
   D. The project's IRR.
   E. The market rate of return.

6. The Sentinel Corporation has an issue of preferred stock that pays a dividend of $5.00 a share. If the appropriate cost of capital is 12%, what would you expect the market price of this stock to be?

   A. $24.00
   B. $41.67
   C. $42.76
   D. $60.00
   E. None of the above.

7. A corporation is considering expanding operations to meet growing demand. With the capital expansion, the current accounts are expected to change. Management expects cash to increase by $20,000, accounts receivable by $40,000, and inventories by $60,000. At the same time accounts payable will increase by $50,000, accruals by $10,000, and long-term debt by $100,000. The change in net working capital is

   A. a decrease of $60,000
   B. a decrease of $40,000
   C. an increase of $40,000
   D. an increase of $60,000
   E. an increase of $120,000.

8. Certain project will cost a firm $5,000 today. The project is not expected to produce any cash flows until the second year, at which point it is expected to produce $6,200. No other cash flows are anticipated. If the appropriate cost of capital is 15%, what is this project's NPV? Round your answer to the nearest dollar.

   A. $- $312
   B. $ 5.24
   C. $18.37
   D. $21.11
   E. $27.78

9. Checks written by the firm are said to generate

   A. collection float.
   B. ledger float.
   C. disbursement float.
   D. book float.
   E. None of the above.

10. A stock is currently selling for $51.00. What is the ***minimum*** amount for which a put option on the stock with a strike price of $50.00 should sell?

   A. -$1
   B. $0
   C. $1
   D. $49.00
   E. $50.00

11. Two mutually exclusive projects have the following expected cash flows, net present values, and internal rates of return:

	Initial Investment	**Cash Flow Year 1**	**Cash Flow Year 2**	**NPV @ 15%**	**IRR**
Project A	-$10,000	$8,000	$12,000	$6,030	56.5%
Project B	-$5,000	$7,000	$5,000	$4,868	92.1%

   If the appropriate discount rate is 15% and there is no capital rationing, which project should be undertaken and why?

   A. Project B since its IRR is higher than that of Project A.
   B. Project B since its initial investment is returned in the first year and can then be invested in another project.
   C. Project B since the initial investment is half of that of A and the remaining funds may be invested in another viable project.
   D. Project A since it has the higher net present value of the two projects.
   E. Project B since its total cash inflows are more than twice the cost of the project, whereas Project A's cash inflows are just twice the initial investment.

12. The Additional Funds Needed (AFN) equation does not capture/measure

   A. additional asset requirements given a change in sales.
   B. additional spontaneous liabilities given the change in sales.
   C. rate of return to shareholders given the change in sales.
   D. net income expected to be earned given the change in sales.
   E. any of the above variables.

13. You purchased a stock for $60 a share and simultaneously wrote a covered call with a strike price of $70 on the stock. The call was selling for $0.50 at that time. Just prior to expiration, the stock was selling for $72 a share. What was your overall gain/loss on this investment strategy?

    A. $0.50 loss
    B. $2.00 loss
    C. $2.50 loss
    D. $10.50 gain
    E. $60.50 loss

14. In evaluating the initial investment for a capital budgeting project,

    A. an increase in net working capital is considered a cash inflow.
    B. a decrease in net working capital is considered a cash outflow.
    C. an increase in net working is considered a cash outflow.
    D. a decrease in net working capital is considered an inflow only if the cash balance increases.
    E. as there is no actual cash outflow, net working capital should not have to be considered.

15. You paid $713 last year for a zero-coupon bond that promised to pay you $1,000 at the end of 5 years. Rather than hold it for the remaining four years, you have decided to sell it today. The prevailing effective annual interest rate is 9%. To the nearest dollar, what price do you expect to get for your bond?

    A. $673
    B. $708
    C. $763
    D. $777
    E. None of the above.

16. You are planning to purchase the stock of Ted's Sheds Inc. and you expect it to pay a dividend of $3 in 1 year, $4.25 in 2 years, and $6.00 in 3 years. You expect to sell the stock for $100 in 3 years. If your required return for purchasing the stock is 12 percent, how much would you pay for the stock today?

    A. $75.45
    B. $77.24
    C. $78.44
    D. $81.52
    E. $85.66

Use the following information to answer questions 17-19:

On an average day, a company writes checks totaling $1,500. These checks take 7 days to clear. The company receives checks totaling $1,800. These checks take 4 days to clear. The cost of debt is 9%.

17. What is the firm's disbursement float?

A. -$10,500
B. -$ 8,700
C. $1,800
D. $10,500
E. None of the above.

18. What is the firm's collection float?

A. -$7,200
B. -$1,800
C. -$2,300
D. $1,800
E. $10,500

19. What is the firm's net float?

A. -$3,300
B. -$300
C. $300
D. $3,300
E. None of the above.

20. Nancy has built a very profitable business, and she credits the entrepreneurship program at her alma mater for a lot of her success. She would like to donate money to her old school to help one worthy graduate each year establish his or her own business. She will donate the money today, with the understanding that the first award will go to a graduate of this year's freshman class. (That is, the first award will be made four years from now.) Her alma mater is able to invest the funds at a constant, annual, tax-free rate of 12%. How much must her donation be if she would like for the annual award to be $10,000 a year and wants the program to continue forever, even after she is no longer around?

A. $52,960
B. $59,315
C. $83,333
D. $93,333
E. None of the above.

21. Which of the following statements regarding projects with no IRR or multiple IRRs is correct?

    A. Projects with no IRR should always be rejected since they offer no return.
    B. A project with multiple IRRs should be accepted so long as all of the IRRs exceed the cost of capital.
    C. A project with multiple IRRs should be accepted as long as at least one of the IRRs exceeds the cost of capital
    D. Statements A and C are correct.
    E. None of the above statements is correct.

22. A common stock currently has a beta of 1.3, the risk-free rate is an annual rate of 6 percent, and the market return is an annual rate of 12 percent. The stock is expected to generate a constant dividend of $5.20 per share. A toxic spill results in a lawsuit and potential fines, and the beta of the stock jumps to 1.6. Assume that dividends remain unexchanged, the new equilibrium price of the stock will be

    A. $24.07
    B. $33.33
    C. $34.33.
    D. $37.68.
    E. $43.33.

23. There is sometimes a ranking problem among NPV and IRR when selecting among mutually exclusive investments. Assuming that there is at most one crossover point, this ranking problem only occurs when

    A. the NPVs are greater than the crossover point.
    B. the NPVs are less than the crossover point.
    C. the cost of capital is to the right of the crossover point.
    D. the required return is to the left of the crossover point.
    E. there is no crossover point.

24. The writer of a put option

    A. has the right, but not the obligation, to buy shares of the underlying asset.
    B. has the right, but not the obligation, to sell shares of the underlying asset.
    C. is obliged to buy shares of the underlying asset if the put holder chooses to exercise the option.
    D. is obliged to sell shares of the underlying asset if the put holder chooses to exercise the option
    E. has the right to buy and the obligation to sell shares in the underlying asset.

25. Yong Importers is evaluating two mutually exclusive projects, A and B. The relevant cash

flows for each project are given in the table below. The cost of capital for use in evaluating each of these equally risky projects is 10 percent.

	Project A	Project B
Initial Investment	$350,000	$425,000
Year	Cash Inflows (CF)	
1	$140,000	$175,000
2	165,000	150,000
3	190,000	125,000
4	100,000	
5	75,000	
6	50,000	

What is the Equivalent Annual Cost (Equivalent Annual Annuity) of Project A's NPV?

A. $12,947
B. $33,247
C. $38,227
D. $45,802
E. None of the above.

Section 2 (50 marks)

Question 2: Hillview Manufacturing (25 marks)

Hillview Manufacturing is considering the replacement of an existing machine. The new machine costs $1.2 million and requires installation costs of $150,000.

The existing machine can be sold currently for $200,000 before taxes. It is 2 years old, cost $700,000, and has a $500,000 book value and a remaining useful life of 5 years. If held until the end of 5 years, the existing machine's book value and market value would be $0 and $10,000 respectively.

Over its 5-year life, the new machine should reduce production costs by $350,000 (before taxes) per year. The new machine will be depreciated fully under straight-line depreciation over its life. It is expected to sell for $180,000 (before taxes) net of removal and clean up costs at the end of 5 years.

Currently the net working capital is $300,000. An increased investment in net working capital of $25,000 will be needed to support operations if the new machine is acquired. Assume that the firm has adequate operating income against which to deduct any loss experienced on the sale of the existing machine. Hillview Manufacturing has 300,000 outstanding shares. It has an 11% cost of capital and is subject to a 20% tax rate on both ordinary income and capital gains. Currently, Hillview management uses the payback decision rule as its sole decision rule in capital budgeting, with a cutoff period of 3 years.

Required

(a) What are the relevant cash flows at t=0 if Hillview decides to undertake the proposed replacement? (5 marks)

(b) What is the differential annual after-tax operating cash flow if the proposed replacement were adopted? (3 marks)

(c) What are the relevant terminal cash flows (at t = 5) if the proposed replacement were adopted. (5 marks)

(d) Calculate the payback period of the replacement decision. Assume cash inflows occur throughout the year. Based on the cut-off period, what would management do? (3 marks)

(e) Calculate the profitability index and NPV of the replacement decision. Would you recommend the replacement decision to the management? (5 marks)

(f) How would you convince management to switch over to the NPV rule? (2 marks)

(g) If management decides to go ahead with the replacement, what would be the impact of the decision on the value of each Hillview Manufacturing share? (2 marks)

Question 3: Zenith 2010 (25 marks)

Zenith Group
Balance Sheet for Year Ending 2008 and 2009
($ in millions)

	2008	2009		2008	2009
Cash	$ 98	$ 148	Accounts payable	$ 79	$110
Accounts receivable	153	214	Interest payable	34	43
Inventory	140	188	Notes payable	291	442
Current assets	391	550	Current liabilities	404	595
			Long-term debt	380	440
			Common stock	55	55
Fixed assets	800	1021	Retained earnings	352	481
Total assets	$1,191	$1,571	Total liab. & equity	$1,191	$1,571

Zenith Group
2009 Income Statement
($ in millions)

Net sales	$1,208
Less: Cost of goods sold	604
Less: Depreciation	130
Less: Other operating expenses	112
Earnings before interest and taxes	362
Less: Interest expense	93
Earnings before taxes	269
Less: Taxes	54
Net income	$ 215

Required

(a) What was Zenith's retention ratio in 2009? (2 marks)

(b) Calculate the Zenith' 2009 ROE using the Extended Du Pont Equation. Show the calculations of the individual components of the Extended Du Pont Equation. (6 marks)

(c) Use 2009 financial figures to estimate the maximum growth rate for Zenith if it intends to rely on both internal and external sources of financing, without increasing its financial leverage. (2 marks)

(d) Use 2009 financial figures to estimate the maximum growth rate for Zenith without the need for any external financing. (2 marks)

(e) Suppose Zenith is projecting a 10% increase in net sales for the 2010, and assume that cost of goods sold, depreciation and other operating expenses increase proportionally to net sales. Assume also that interest expense and the firm's tax rate remain unchanged from 2009. If Zenith decides to change its dividend payout rate to 50%, how much does the firm intend to pay out in dividends in 2010? (5 marks)

(f) Use 2008 and 2009 financial figures to estimate Zenith's Cash (or Cash Conversion) Cycle in 2009. Total supplier purchases for 2009 were approximately equal to 2009's cost of goods sold. (6 marks)

(g) Suppose Zenith was operating at 80% of capacity in 2009. How much would 2010 sales figure be before Zenith had to consider purchasing additional fixed assets? (2 marks)

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