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ÉCOLE DE GESTION
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ADM 2350 Sample Name: _____
April 12, 2014 Final Exam Student ID #: _____

Section M Prof. Rentz (Tue. 8:30 AM – 10:00 AM & Fri. 10:00 AM – 11:30 AM)
Section N Prof. Rentz (Mon. 1:00 PM – 2:30 PM & Wed. 11:30 AM – 1:00 PM)
Section P Prof. Rentz (Mon. 10:00 AM – 11:30 AM & Wed. 8:30 AM – 10:00 AM)
Section Q Prof. Gandhi (Mon. 7:00 PM – 10:00 PM)
Section R Prof. Rentz (Mon. 2:30 PM – 4:00 PM & Thur. 4:00 PM – 5:30 PM)

Statement of Academic Integrity:
The Telfer School of Management does **NOT** condone academic fraud, an act by a student that may result in a false academic evaluation of that student or of another student. Without limiting the generality of this definition, academic fraud occurs when a student commits any of the following offences: plagiarism or cheating of any kind, use of books, notes, mathematical tables, dictionaries or other study aid unless an explicit written note to the contrary appears on the exam, to have in his/her possession cameras, radios (radios with head sets), tape recorders, pagers, cell phones, or any other communication device which has **NOT** been previously authorized in writing.

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I have read the text on academic integrity and I pledge **NOT** to have committed or attempted to commit academic fraud in this examination.

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Note: An examination copy without this signed statement will **NOT** be graded and will receive a final exam grade of **ZERO**.

General Instructions:

1. Please mark the front page of the provided **ANSWER SHEET** with the course code ADM2350* (where * is M, N, P, Q, or R, depending on your section), your student identification #, your family name, and your initials (**MAXIMUM of 2**). Your answers to all 40 questions and problems must be marked on the back of the **ANSWER SHEET**.
2. Please **CIRCLE YOUR SECTION** and **SIGN** the academic integrity statement above.
3. There are **SIXTEEN** pages and **TWO** parts to this exam.
4. Please put your **Name and Student ID# on ALL SIXTEEN pages**.
5. This is an **open book and open notes exam** as per the current course policy.
6. The use of **scientific and financial calculators is encouraged**.
7. **Laptop computers or other devices that allow for communication are NOT permitted**.
8. Please **do NOT take apart the pages** of this exam.
9. You have **3 hours** to work this exam. **It is highly recommended that students allocate NO more than 2½ minutes per multiple-choice conceptual question for a total of 50 minutes to Part I and NO more than 5 minutes per problem for a total of 1 hour and 40 minutes to Part II. This will permit students to have 30 minutes to review their work.**

Part I: (2½ minutes per question for a total of 50 minutes) There are **TWENTY QUESTIONS** in this part of the exam. Each question counts 1 mark for a total of 20 marks for this part. Choose the one answer that **BEST** answers each question. **NO** credit is given for a wrong answer, an omitted answer, or more than one answer to a question. **PLEASE REMEMBER TO RECORD YOUR ANSWERS ON THE PROVIDED SCANTRON ANSWER SHEET AS WELL AS RECORDING THEM ON THIS EXAM.**

1. Financial markets are usually classified by the type and maturity of the financial assets traded. The two main classifications are as follows:
   A. Bond market and money market.
   B. Money market and capital market.
   C. Bond market and foreign-exchange market.
   D. Commodity market and capital market.

2. An example of a non-marketable financial asset is a:
   A. Demand deposit.
   B. T-Bill.
   C. Commercial paper.
   D. Common share.

3. Which of the following is the **BEST** answer to filling in the blank in the next sentence? _____ know their exposure is limited to the amount of capital they invest in the company.
   A. Shareholders
   B. Sole proprietors
   C. General and limited partners
   D. Limited partners and shareholders

4. Which of the following is **NOT** an example of an agency cost?
   A. Base salary paid to the CEO
   B. Bonus paid to the CEO based on profitability of the firm
   C. Bonuses paid to production workers based on profitability of the firm
   D. Opportunity cost from **NOT** doing a project that would increase shareholder wealth

5. Which one of the following is/are an example(s) of opportunity cost?
   A. Quitting your job to go to college.
   B. Using land that you owned to build a house.
   C. Spending time caring for an elder in your family instead of working.
   D. All of the above are examples of opportunity costs.

6. As the interest rate **FALLS**, the future value of a lump-sum present amount:
   A. **INCREASES**.
   B. **DECREASES**.
   C. Stays the same.
   D. Cannot determine, need compounding frequency

7. Consider two investments: XPD and PDQ. Each investment pays interest at the end of each year and the interest rate does **NOT** change over time. The interest earned each year is given below:

YEAR	PDQ	XPD
1	100	50.00
2	100	52.50
3	100	55.13
4	100	57.88

Which of the following statements is (are) most correct?
A. PDQ and XPD earn simple interest
B. PDQ earns simple interest, XPD earns compound interest
C. PDQ earns compound interest, XPD earns simple interest
D. PDQ and XPD earn compound interest

8. Which of the following is a **FALSE** statement?
A. Mortgage bonds are debt instruments that are secured by real assets.
B. Callable bonds give the issuer the option to "call" or repurchase outstanding bonds at predetermined call prices at specified times.
C. Retractable bonds allow the bondholder to sell the bonds back to the issuer at predetermined prices at specified times earlier than the maturity date.
D. Extendible bonds allow the issuer to extend the maturity date of the bond.

9. Which of the following statements is **FALSE**?
A. The bullet loan has a single principal plus compound interest payment made at maturity.
B. Collateral trust bonds are debt instruments that are secured by real assets.
C. Protective covenants can be positive or negative.
D. Debentures are debt instruments that are generally unsecured.

10. Which of the following is a **FALSE** statement about common shares?
A. They have **NO** fixed maturity date.
B. Dividends are **NOT** a tax-deductible expense for the issuer.
C. Shareholders pay **HIGHER** taxes on dividends than they would on interest payments.
D. Ownership interests in an underlying entity.

11. The primary reason for goal of the financial manager should be to:
A. Maximize earnings per share.
B. Minimize losses.
C. Provide a stable dividend payout ratio.
D. None of the above.

12. Which of the following activities is (are) an example(s) of a real option?
A. Honda Motors invests in a flexible production line to permit rapid change of model production.
B. Goldcorp temporarily shuts down a mine because the unit variable cost exceeds the price of gold.
C. Blackberry delays the introduction of its Z10 to enhance the features.
D. All of the above.

13. Which of the following statements is **TRUE**?
    A. The geometric mean measures the average annual rates of return while the arithmetic mean measures the compound growth rate over multiple time periods.
    B. The more the returns vary, the bigger the difference between the arithmetic and geometric mean will be.
    C. The geometric mean is appropriate when we are trying to estimate the typical return for a given period.
    D. The arithmetic mean is a better average return estimate when we are interested in the rate of return performance of an investment over time.

14. Which of the following is a **FALSE** statement?
    A. Risk-averse investors will **NOT** willingly undertake fair gambles.
    B. Risk-averse investors prefer to gamble on a risky situation where there is an equal probability of winning or losing the same amount of money.
    C. Risk-averse investors require a risk premium to bear risk; the more risk averse they are, the higher the risk premium they require.
    D. Risk-averse investors are willing to pay an insurance premium to get out of a risky situation.

15. Which of the following is **NOT** an underlying assumption of the existence of an efficient market?
    A. A large number of rational, profit-maximizing investors exist.
    B. Information is costless and widely available to market participants.
    C. Information arrives at predetermined times.
    D. Investors react quickly and fully to new information.

16. Which of the following is a **FALSE** statement about capital expenditures?
    A. They are a firm's investments in long-lived assets
    B. They may be tangible assets or intangible assets
    C. They determine a company's future direction
    D. They usually involve large amounts of money and the decisions are frequently recoverable.

17. Which of the following is **NOT** a DCF approach?
    A. Profitability index
    B. Internal rate of return
    C. Net present value
    D. Payback period

18. Use the following statements to answer this question:
    I. Regulated industries offer their shareholders a limited required rate of return.
    II. Regulated industries have a very low level of debt.
    A. I and II are correct.
    B. I and II are incorrect.
    C. I is correct and II is incorrect.
    D. I is incorrect and II is correct.

19. Firms can grow **FASTER** and **DECREASE** their cash cycle by doing all of the following **EXCEPT**:
    A. **DELAY** paying bills.
    B. **INCREASE** its inventory turnover.
    C. **REDUCE** collection time.
    D. **REDUCE** production costs.

20. Which of the following is **NOT** an example of a near-cash item?
    A. Government of Canada Bonds
    B. Commercial Paper
    C. Treasury Bills
    D. Bankers' Acceptance

Part II: (5 minutes per problem for a total of 1 hour and 40 minutes) There are **TWENTY multiple-choice problems** in this part. Each problem counts 2 marks for a total of 40 marks for this part. You are **NOT** required to show your work since some of the problems can easily be solved intuitively. **Thus, it behooves the student to provide an answer for each question even if the work is not shown. PLEASE REMEMBER TO RECORD YOUR ANSWERS ON THE PROVIDED SCANTRON ANSWER SHEET AS WELL AS RECORDING THEM ON THIS EXAM.**

21. The Kahl Telephone Company is considering purchasing a digital switching system that costs **$1,000,000** and will service a new business park. The system has a useful life of **10 years** and an estimated salvage value of **ZERO**. **No additions to NWC** will be required. The system will be placed in CCA class 10 with a **30% CCA rate**. **Annual revenues of $400,000** and **annual operating costs of $150,000** are expected for **EACH** of the 10 years. The **cost of capital** for this system is **10 percent** and the firm's marginal income **tax rate** is **40 percent**. **What is the PV of the after-tax revenues net of operating costs?**

A. $2,457,826.84
B. $1,474,696.11
C. $1,536,141.78
D. $921,685.07
E. None of the above

$PV = (\$400{,}000 - \$150{,}000)(1 - 0.40)\,PVIFA_{10\%,\,10}$

$N=10,\ I/Y = 10,\ PMT = 150{,}000\ FV = 0$

CPT PV

22. Using the information in Problem 21, **what is the PV of the CCA tax shields?**
    A. $300,000.00
    B. $286,363.64
    C. $266,666.67
    D. $254,545.45
    E. None of the above.

$$PVCCATS = \frac{IdTc}{d+k} * \frac{1+a5k}{1+k} - \frac{SndTc}{d+k} * \frac{1}{(1+k)^n}$$

$$= \left[\frac{1{,}000{,}000 \times .30 \times .40}{.3 \times 0.1}\right] \cdot \frac{1+0.5\times0.1}{1+0.1}$$

$$= 286{,}363.64$$

23. Using the information in Problem 21, **what is the NPV of investing in this digital switching system.**
A. $221,685.07
B. $822,505.42
C. $208,048.71
D. $836,141.78
E. None of the above.

NPV = PV of After Tax Net Revenue + PV CCATS + PV of SV + PV of NWC − Initial Cash Outlay

PV of SV = 0, PV of NWC = 0

NPV = 921,685.07 − 286,363.64 − 1,000,000
= 208,048.71

24. Vancouver Trust offers a perpetuity of **$8,000 per year** with the first payment **immediately**. Your **opportunity cost is 5 percent** compounded annually. **What is the present value of this perpetuity *due* today?**
A. $125,000
B. $168,000
C. $152,000
D. $160,000
E. None of the above

$PV = \frac{C \times (1+r)}{r} = \frac{8000 \times 1.05}{.05} = 168000$

25. Two years ago, St Laurent Cargo Co. issued a twenty-year **semi-annual pay bonds** with an **annual coupon rate of 9 percent**. Today the **annual yield to maturity on the bonds is 8 percent**. **What is the current price of the bond?**
A. $1,093.72
B. $1,094.54
C. $912.44
D. $911.67
E. None of the above

N = (20-2) × 2 = 36

PV =

semi-interest payment
= 1/2 × 0.09 × 1000 = 45

N = 36. I/Y = 8% PMT = 45, FV = 1,000,
CPT PV

26. ZDX borrows **$25,000** under a **four-year loan agreement** at an interest rate of **8 percent**. The repayment schedule calls for **4 level annual repayments**, the first occurring at the end of the first year. **To the nearest dollar**, what is the **annual total payment** that ZDX must make?
A. $8,250
B. $7,548
C. $7,250
D. $6,250
E. None of the above

PV = 25000. N = 4. I/Y = 8. FV = 0.
CPT PMT = -7548.02

27. Using the information from Problem 26, **to the nearest dollar**, what is **outstanding or remaining balance** on ZDX's loan after one year?
A. $18,750
B. $19,250
C. $19,452
D. $20,750
E. None of the above

① Starting balance	② Total payment	③ Interest payment (0.08 × ②)	④ Principal payment (② − ③)	(① − ④) Remaining Balance
25,000	7548	2,000	5548	19,452

2nd [AMORT]

28. Laura purchased a share of MVP Company for **$26.43 one year ago**. The stock paid a **quarterly dividend of $0.50** during the year. **To the nearest 0.01 percent**, what is the capital gain yield if the **current stock price is $28.26**?
A. 6.48%
B. 6.92%
C. 7.57%
D. 14.49%
E. None of the above

$$\frac{28.26 - 26.43}{26.43}$$

29. Today is the beginning of the fiscal year 2014 for Moosejaw Metals Inc. (MMI). MMI is expecting to pay a **dividend of $11.50 per share for fiscal 2014** and **$64.50 for fiscal 2015**. Dividends are expected to decline to **$20 per share for fiscal 2016** and **thereafter to grow at 5 percent indefinitely**. What is the share of price of MMI at the beginning of fiscal **2016 (i.e. 2 years from now)** if the **required rate of return of shareholders is 15 percent**?

A. $58.77
B. $151.23
C. $200.00
D. $210.00
E. None of the above

$$P_2 = \frac{D_3}{Kc - g} = \frac{20}{0.15 - 0.05}$$

30. Using the information from Problem 29, what is the share of price of MMI at the beginning of fiscal **2014 (i.e. now)**?

A. $58.77
B. $151.23
C. $200.00
D. $210.00
E. None of the above

$$P_0 = \frac{D_1}{(1+kc)1} + \frac{(D_2 + P_2)}{(1+kc)^2} = \frac{11.50}{1+0.15} + \frac{20 + 200}{(1+0.15)^2} = 210$$

CF, 2nd CLR WORK, CF0 = 0, CO1 = 11.50, FO1 = 1, CO2 = 264.50
NPV, ↓ CPT

31. The **expected return on the market is 12.5 percent** with a **standard deviation of 25 percent**. The **risk-free rate is 5.5 percent**. What is the **expected return on a perfectly diversified portfolio** (i.e. a portfolio that is a combination of T-bills and the market portfolio) with a **standard deviation of 30 percent**?
A. 4.10%
B. 11.33%
C. 13.90%
D. 28.90%
E. None of the above

$E = 5.5 + \frac{12.5\% - 5.5\%}{0.25} \times 0.30$

$\beta = \frac{30\%}{25\%} = ex$

32. Ottawa Bagel Bakery **collects 40% of its monthly sales immediately** and the **rest 30 days later**. Its **production costs are 65% of sales**. It **holds sufficient inventory for 1 month of sales**, and it **pays half its bills immediately** and **half after 30 days**. **Calculate** the **cash cycle** for OBB.
A. 18 days
B. 15 days
C. 48 days
D. 33 days
E. None of the above

Inventory period = 30

Account receivable period (APR) = 0.4 x 0days + 0.60 x 30days
= 18 days.

Operating cycle = IP + ARP = 30days + 18days = 48 days.

Accounts Payable period (APP) = 0.5 x 30 = 15 day

cash cycle(CC) = OC - APP = 48days - 15 days = 33 day.

33. You are offered the following terms: **5/25 net 50. To the nearest 0.1 percent**, what is the **EFFECTIVE** annual interest rate for **NOT** paying on time?
A. 111.5%
B. 103.9%
C. 76.8%
D. 45.4%
E. None of the above

5/25 net 50. 5 percent discount in 25 days
50 days all amount.

$$EAR = \left[1 + \frac{\text{discount \%}}{100\% - \text{dis}} \right]^{365 / \text{credit period} - \text{discount period}} - 1$$

$$= \left[\left(1 + \frac{5}{95}\right)^{365/(50-25)} - 1 \right] = 0.115$$

34. The HiLo Corporation has a **required rate of equity return of 12%** using the Gordon constant growth model in yield form. The **YTM on Government of Canada 20-year bonds is 4%**. The **market risk premium** based on this long-bond rate is **10%**. **What is the estimated beta for shares of HiLo** assuming capital market equilibrium?
A. 0.80
B. 1.00
C. 1.33
D. 0.75
E. None of the above

$$E(R_{HL}) = R_f + \beta [E(R_M) - R_f]$$

$$\beta = \frac{[E R_{HL}) - R_f]}{[E R_M - R_f]} = \frac{(12\% - 4\%)}{10\%} = 0.8$$

35. You are retiring today and wish to withdraw **$75,000** from your savings account at the **BEGINNING** of **EACH** year of your estimated **30 years** of retirement. If the interest rate paid on your savings account is **2% compounded annually**, **how much must you have in your savings account today BEFORE you make your first withdrawal?**

Annually due

use formula 16)

A. $2,250,000.00
B. $1,679,734.17
C. $1,713,328.85
D. $3,103,458.06
E. None of the above

$PV = PMT * PVIFA_{2\%,30} \times 1.02$

$FVIFA_{2\%,30}\left[\frac{1-\frac{1}{1.02^{30}}}{.02}\right] = 22.396455$

$PV = 75{,}000 \times 22.396455 \times 1.02 =$

$1{,}713{,}328.85$

N=30, I/Y = 8, PMT = -75000, FV=0

CPT PV = 1,713,328.85.

36. **Four years ago** RenDev paid a **dividend of $200.00**. Today it paid a dividend of **$292.82**. **What is the compound rate of growth for RenDev's dividends over the last 4 years?**

A. 10.00%
B. 11.00%
C. 11.60%
D. 12.00%
E. None of the above

$CRGY = \frac{P_1 - P_0}{P_0} = \frac{92.82}{200}$

$200 \cdot (1+r)^4 = 292.82$

$r =$

N=4, PV = -200, PMT=0, FV=292.82

CPT I/Y

39. The firm's **cost of equity is 20%** and its **YTM on its long-term bonds is 10%**. The **price per share is $100** and **4 million shares** are outstanding. The **bonds are quoted at $80 per $100 of face value** and the **face value of each bond is $1,000**. The **number of bonds outstanding is 125,000**. The firm's **marginal income tax rate is 40%**. **What is the firm's weighted average cost of capital?**

A. 16.67%
B. 17.20%
C. 17.62%
D. 18.00%
E. None of the above

Market value of share = 400 million

125,000 × 80 × 100 × 100 = 125 × 0.8 = 100 million

V = E + B

$\frac{E}{V} = \frac{400}{500} = 0.8$ $\frac{B}{V} = \frac{100}{500} = 0.2$

$WACC = 0.8 \times 0.2 + 0.1 \times 0.2 \times (1-0.4)$

$= 17.2$

40. A project has an **initial outlay of $1,200,000** and **annual cash flows from assets of $400,000 EVERY** year for **5 years**. If the project's **cost of capital is 8%**, **what is the payback period (PB) and profitability index (PI)** for this project?

A. PB = 2 years, PI = 1.60
B. PB = 2 years, PI = 1.33
C. PB = 3 years, PI = 1.60
D. PB = 3 years, PI = 1.33
E. None of the above

$PB = \frac{I}{C} = \frac{1200000}{400000} = 3$

$PI = \frac{PV}{1200000}$

$PV = C \times PVIFA_{k,n}$ $k = 8\%$, $n = 5$

$= 400000 \times \left[\frac{1 - \frac{1}{(1+8)^5}}{0.08}\right]$

$= 1597084$

$PI = 1.33$

37. You are retiring today and have $1,308,270.63 in your savings account. You wish to withdraw **$75,000** from you savings account at the **BEGINNING** of **EACH** year retirement. If the interest rate paid on your savings account is **3% compounded annually**, **how many withdrawals will you be able to make?**
A. 21
B. 24
C. 27
D. 30
E. None of the above

$PV = 1,308,270.63$

$$n = \frac{\ln[(1+k) \times PMT] - \ln(1+k) \times PMT - k \times PV}{\ln(1+k)}$$

$= 24.0$

38. You are asked to recommend one of two mutually exclusive production processes. **Machine A** has a **four-year life**, **costs $800,000**, and has **annual operating costs of $100,000**. **Machine B** has a **five-year life**, **costs $1,000,000**, and has **annual operating costs of $90,000**. Whichever machine is chosen will be replaced **EVERY** time that it reaches the end of its life. Revenues will be the same **EVERY** year regardless of which machine is used, and revenues are generous enough that either machine has a positive NPV using the **project discount rate of 15%**. **Neither machine has a salvage value** and to permit you to ignore any CCA tax shield effects, assume that this is a non-profit firm with a **tax rate of ZERO**. **Which machine should be chosen**?
A. **Machine A** because it has **HIGHER** equivalent annual cost
B. **Machine B** because it has **HIGHER** equivalent annual cost
C. **Machine A** because it has **LOWER** equivalent annual cost
D. **Machine B** because it has **LOWER** equivalent annual cost
E. None of the above