



**ENGG 401 Sample Midterm**  
**Covering Chapters 1,2,3, and 4 of the Course Text**  
**In Multiple-Choice and True-False Format**

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*Midterm problems in this course cover, in general:*

- *defining terms and activities in engineering management,*
- *identifying quantitative financial information in the context of business situations,*
- *filling out or interpreting financial information on statements,*
- *calculating and interpreting metrics (such as financial ratios) that pertain to engineering finance and engineering management scenarios, and*
- *analyzing engineering financial situations such the time-value of money and interest calculations.*

*In my section of this course, material tested in Midterm #1 includes chapters 1, 2, 3, and 4 of the text, as well as material presented in class in lectures 1 through 12. The midterm is in multiple choice format, with 20 multiple-choice questions and 25 true-false questions.*

*The midterm will be held in class (fifty minutes in duration) and is open book & open notes (hard copy only). Each student will receive an exam question booklet and a machine-readable scantron sheet to record the answers. Using a pencil, the student can record their name, student ID, and exam version on the scantron sheet before the exam begins. (The front page of the midterm will show what code to inscribe on the scantron sheet for the exam version.) Answers are also recorded in pencil on the scantron sheet, which must be submitted with the student's copy of the examination. The student must also write their name on their copy of the examination paper. A time-saving tactic is to note the answer on the exam paper first, and then transfer the answers to the scantron sheet. Note that the examination paper itself is NOT marked; only the scantron sheet is marked for credit.*

*The 5-choice questions will be weighted higher than the true-false questions. Some questions (not many) will require simple calculations. There is a URL link on the web site to a guide to calculations, which may be printed out for reference. Calculators are allowed, but no device may be used that is capable of wireless communication.*

*You may wish to use these samples to make up your own questions for studying. Definitions of terms sometimes depend on the circumstances, so read the questions carefully and choose the most correct answer.*

*The following pages are in the format that is typical of an ENG G 401 midterm (but different sections may have different layouts). You should be able to complete this sample midterm in approximately forty minutes.*



**University of Alberta**  
**Faculty of Engineering**

**ENGG 401 Section A2**

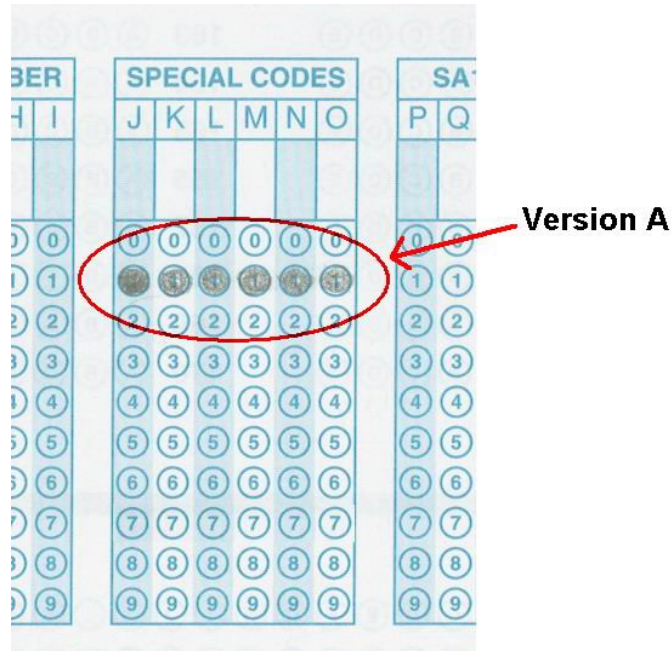
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**Sample Mid-Term Exam: Version A**

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Note: for "Version A" mark:



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**Students must turn in both a scantron sheet and this test. There is no credit for the exam if this test is not turned in.**

Name: \_\_\_\_\_ Student ID \_\_\_\_\_



**Part 1: Multiple Choice (2.5 points each), Enter Answers on Scantron Sheet 1 to 20.**

- 1) The four general types of businesses are
- a) Manufacturing, wholesale, retail, and services.
  - b) Product development, marketing, sales, and finance.
  - c) Manufacturing, purchasing, sales, and services.
  - d) Finance, engineering, administrative services, and operations.
  - e) None of the above.
- 2) Managing a business is like medicine because
- a) Physicians have to operate their practice as well as see patients.
  - b) Cash is like oxygen to a company, and it can not be postponed.
  - c) A business has simple systems that can be treated one at a time.
  - d) Managers, like physicians, only treat immediate concerns.
  - e) Business systems are only healthy in the long-term.
- 3) An advantage of a corporation is
- a) There is no restriction on what type of business the corporation operates.
  - b) There is less access to capital.
  - c) Stockholders receive dividends every quarter.
  - d) Stockholders have limited liability for company debts.
  - e) Management does not have to respond to stockholder expectations.
- 4) The goal of a for-profit company is
- a) To maximize revenue.
  - b) To maximize social values.
  - c) To make money.
  - d) To keep the workers in chains.
  - e) All of the above.

For questions 5 and 6: Caligula has a business that produces unregulated substances. His income statement for the reporting period (first year of operations) has the following information available:

Gross revenue	\$12,345.
Bad debt	\$840.
COGS	\$666.
SG&A	\$1,234.
Depreciation	\$80.
Other Income	\$506.



5) Operating Income is:

- a) \$9,525.
- b) \$9,605.
- c) \$10,839.
- d) \$11,505.
- e) Not reported.

6) The cash flow from operations is:

- a) \$9,525.
- b) \$9,605.
- c) \$10,031.
- d) \$10,111.
- e) \$10,839.

7) Caligula bought assets at the beginning of the first year of the business for \$240. He calculates straight-line depreciation with no salvage value expected after three years. He sells the assets at the end of year two for \$60, the same year that there is one-time license of his technology for \$2,000. The Other Income entry in year 2 is:

- a) \$506.
- b) \$1,920.
- c) \$1,980.
- d) \$2,000.
- e) \$2,020.

8) The Book Value of a depreciating asset:

- a) Is always equal to the asset's current Market Value minus its accumulated depreciation charges.
- b) Is generally lower than the UCC.
- c) Depends on the UCC and the timing of the company's fiscal year.
- d) Is always more than the salvage value unless there is a writedown.
- e) None of the above.

9) You are the manager of a manufacturing company. Your annual depreciation charges are about \$400k. In the previous year, operating income was -\$100k but your net cash flow was \$500k. There is available production capacity. You have reason to expect that revenue will go up in the coming year without increasing SG&A. You should:

- a) Be very worried about the cash flow from operations but not net cash flow.
- b) Be concerned about operating income right now, but not very worried about the future operating income next year provided that things go to plan.
- c) Be worried about the future because net cash flow is more than depreciation.
- d) Put your résumé on monster.com because you expect the business to fail in the very near future due to the negative cash flow from operations.

10. Which of the following statements about regulations is TRUE?

- a) Fair trade laws are primarily aimed at protecting individuals from business.



- b) Labor standards are an example of protecting individuals from society.
- c) Environmental regulations are an example of protecting society from business.
- d) Regulations are increased for efficiency and decreased for effectiveness.
- e) All of the above.

11) Which statement is TRUE?

- a) Net Income is given to the owners as a dividend or applied to repay existing loans.
- b) Cash break-even occurs at a higher operating income than book break-even.
- c) Depreciation is the only non-cash expense that is a source of cash.
- d) If one-time revenue is included in other income, it creates a distortion of the actual margin in the reporting period.
- e) Retained Earnings is the cumulative value of a business.

12) If the depreciation period is shorter than the life of the asset, which statement is TRUE?

- a) Operating Income is overstated.
- b) The actual value of the asset is less than the book value.
- c) The depreciation expense is lower than it would be for a longer depreciation period using the same method.
- d) Operating Income is depressed during the depreciation period.
- e) The asset has a gain on sale of assets immediately following the end of the depreciation period, no matter what its market value may be.

13) A company purchases a new asset. Where does the purchase amount appear on the Income Statement?

- a) SG&A.
- b) COGS.
- c) Other income.
- d) Gross Revenue.
- e) None of the above.

14) Cold Fusion Inc. buys a new crystalline fusion reactor for \$1 billion and uses the declining balance method to calculate its depreciation at a rate of 40%. The book value at the end of year 2 is:

- a) \$200 M.
- b) \$360 M.
- c) \$400 M.
- d) \$600 M.
- e) Not possible to calculate without knowing the expected salvage value.



For questions 15 and 16: Cold Fusion Inc. has the following information available for its most recent two years of operation (figures are expressed in thousands of dollars):

	2005	2006
Gross revenue	\$2,400	\$3,600
Bad debt, warranty, allowance	\$200	\$200
Net revenue		
COGS	\$1,400	\$2,400
Contribution margin		
CM %		
SG&A	\$250	\$400
Operating Income		
Other Income	\$50	\$0
Net Income		

15) What do you know about the company's performance?

- a) Other Income is up and Bad debt and warranty work has grown.
- b) Growth in sales has seen margin go up, but the margin percentage has dropped.
- c) Operating income has gone down.
- d) Net income has gone up.
- e) None of the above.

16) In 2005, company was operating at 75% capacity. Rounding down to the nearest percent, what is the highest discount that the company could offer without losing money on incremental sales?

- a) 25%.
- b) 27%.
- c) 33%.
- d) 40%.
- e) 75%.

17) Pick the best definition for engineering management:

- a) Planning and coordination of technical resources to achieve a corporate objective.
- b) Interfacing with accountants to deliver performance from technical assets.
- c) Operations management of manufacturing companies.
- d) Delegation of responsibilities for finance, engineering, and administrative services.
- e) Leading a team of design engineers.

18) A liability is

- a) An unprofitable subsidiary of a company.
- b) An intangible credit that will be received within one year.
- c) Something the company owes to somebody else.
- d) A use of funds.
- e) None of the above.



For Questions 19 and 20: A company purchased two new computer servers this year with the following asset values:

- GoliathX1: \$250,000
- Terafic: \$100,000.

The company has other servers with remaining UCC of \$120,000. Assume that Canada Revenue Agency allows a rate of 30% for this asset class.

19) This year's CCA is:

- a) \$36,000.
- b) \$75,000.
- c) \$88,500.
- d) \$105,000.
- e) \$141,000.

20) The remaining UCC after the end of this year will be:

- a) \$154,000.
- b) \$206,500.
- c) \$365,000.
- d) \$381,500.
- e) \$395,000.

**Part 2: True False (2 points each). Mark A if the statement is true, and B if the statement is false. Enter answers on Scantron Sheet 21 to 50.**

21) Depreciation is a source of funds.

22) Working Capital is the ratio of assets to liabilities.

23) Society imposes regulations on businesses to protect individuals from each other.

24) Double-entry accounting entails having one set of books for internal tracking and another set of books for reporting to stockholders and for paying taxes.

25) The purpose of an income statement is to show whether the company has made a profit or a loss over a defined period.

26) The opposite of a writedown is a gain on the sale of assets.

27) If a company has a product with a margin of 74% and the plant is running at 90% capacity, a discount of 25% on marginal sales may be acceptable.

28) A short-term lender may require a minimum level of working capital as a condition that the borrower must meet in order to maintain the credit line.

29) A company purchases a grader for \$30,000, and no other assets in that asset class in that year. The UCC remaining from the previous year is \$10,000. For CRA rate of 30%, this year's CCA is \$7,500.



- 30) The change in retained earnings in a reporting period is the net income minus dividends.
- 31) For an asset purchased for \$5,000, with salvage value after 5 years of \$2000, the depreciation using the SOYD method is \$800 in the second year.
- 32) An increase in an asset account is a credit.
- 33) A company should expect a higher margin as its revenue increases because of economies of scale.
- 34) When a piping company completes a \$10 M production run of pipe, the finished goods inventory account is credited.
- 35) Current assets and liabilities are likely to have a change in their value within one year.
- 36) Reducing the amount of receivables is a way to decrease the short term credit line.
- 37) The income statement is a snapshot of the value held by a company.
- 38) Most aircraft have a CCA rate of 25%.
- 39) The triple bottom line relates only to a company's safety and environmental performance and community involvement.
- 40) Cash break-even says that a business is generating enough income to replace its assets.
- 41) A mortgage has larger payments against the principal in the later years of the repayment plan.
- 42) The 50% rule or half-year convention allows a business to double its CCA claim in the year that an asset is purchased.
- 43) If a company expects the life of an asset to be 8 years, and uses double declining balance depreciation, then the depreciation rate is 25%.
- 44) All other things being equal, if a company decides to change its depreciation period it will not change next year's cash flow from operations.
- 45) When a company has negative cash flow from operations, it should amortize the depreciation over the bandwidth of the discount rate.





**Answers to Multiple-Choice Questions**

- 1 a
- 2 b
- 3 d
- 4 c
- 5 a
- 6 b
- 7 c
- 8 d
- 9 b
- 10 c
- 11 e
- 12 d
- 13 e
- 14 b
- 15 b
- 16 c
- 17 a
- 18 c
- 19 c
- 20 d

**Answers to True-False Questions**

- 21 True
- 22 False
- 23 False
- 24 False
- 25 True
- 26 True
- 27 True
- 28 True
- 29 True
- 30 True
- 31 True
- 32 False
- 33 True
- 34 False
- 35 True
- 36 True
- 37 False
- 38 True
- 39 False
- 40 False
- 41 True
- 42 False
- 43 True
- 44 True
- 45 False (unless you are Dilbert)