



**THE UNIVERSITY OF THE WEST INDIES**  
**CAVE HILL**

**EXAMINATIONS OF** \_\_\_\_\_ **APRIL/MAY** \_\_\_\_\_ **2017**

**CODE AND NAME OF COURSE: MGMT3076- MANAGING FINANCIAL INSTITUTIONS**

**DATE AND TIME:**

**DURATION: 2 HOURS**

**INSTRUCTIONS TO CANDIDATES: This paper has Four (4) pages and Six (6) questions.**

**This paper has TWO (2) sections – SECTION A and SECTION B**  
***Candidates are required to answer THREE (3) questions. You are required***  
***to answer QUESTION 1 in SECTION A and any TWO (2) questions in***  
***SECTION B.***

**SECTION A**

***This question is compulsory.***

**QUESTION 1 (20 marks)**

- a) List and describe five (5) broad categories of financial institutions. (10 marks)
- b) Identify and discuss the five (5) risks common to all financial institutions. (10 marks)

**SECTION B**

***Answer TWO (2) questions from this SECTION.***

**QUESTION 2 (20 marks)**

- a) Identify and discuss the five (5) main functions of a financial institution's capital. (10 marks)
- b) Compare and contrast the use of market value accounting against book value accounting for depository financial institution (8 marks)
- c) Briefly explain the term contagious runs. (2 marks)

**TURN OVER**

**QUESTION 3 (20 marks)**

The balance sheet of XYZ Bank is provided below. All figures in millions of US Dollars.

Assets			Liabilities		
1	Short-term consumer loans (one-year maturity)	\$ 150	1	Equity capital (fixed)	\$ 120
2	Long-term consumer loans	125	2	Demand deposits (two-year maturity)	170
3	Three-month Treasury bills	130	3	Three-month CDs	140
4	Six-month Treasury notes	135	4	Three-month bankers acceptances	120
5	Three-year Treasury bond	170	5	Six-month commercial paper	160
6	10-year, fixed-rate mortgages	120	6	One-year time deposits	120
7	30-year, floating-rate mortgages (rate adjusted every nine months)	140	7	Two-year time deposits	40
		\$970			\$970

- Determine the total one-year rate-sensitive assets. (2 marks)
- Determine the total one-year rate-sensitive liabilities. (2 marks)
- Calculate the cumulative one-year repricing gap (CGAP) for the bank. (2 marks)
- Calculate the cumulative one-year impact on net interest income of a 1% increase and a 1% decrease in interest rates. (4 marks)
- Explain how the CGAP impacted the change in net interest income. (2 marks)
- Compare and contrast the Duration Model and the Repricing Model as measures of interest rate risk. (8 marks)

**TURN OVER**

**QUESTION 4 (20 marks)**

- a) Explain the purpose of credit scoring models. (2 marks)
- b) Identify and briefly discuss the 5 C's of credit. (8 marks)

The estimated linear probability model used by a financial institution to predict business loan applicant default probabilities is given by:

$$PD = 0.03X_1 + 0.02X_2 - 0.05X_3 + \text{error}$$

where  $X_1$  is the borrower's debt/equity ratio  
 $X_2$  is the volatility of borrower earnings, and  
 $X_3$  is the borrower's profit margin.

For prospective borrower A:  $X_1 = 0.75$ ,  $X_2 = 0.25$ , and  $X_3 = 0.10$ .  
 For prospective borrower B  $X_1 = 0.80$ ,  $X_2 = 0.20$ , and  $X_3 = 0.15$ .

- c) Calculate the expected probabilities of default (PD) for each prospective borrower and discuss which borrower is the better loan candidate. (8 marks)
- d) Explain the major weaknesses of the linear probability model. (2 marks)

**QUESTION 5 (20 marks)**

- a) Liquidity risk can arise from both the liability side and the asset side of the balance sheet. Explain how liquidity risk can occur from either side. (4 marks)
- b) Clearly explain and differentiate between purchased liquidity management and stored liquidity management. (4 marks)

Windydale National Bank has the following balance sheet (in millions):

<u>Assets</u>		<u>Liabilities and Equity</u>	
Cash	\$30	Deposits	\$110
Loans	90	Borrowed funds	40
Securities	<u>50</u>	Equity	<u>20</u>
Total assets	<u>\$170</u>	Total liabilities and equity	<u>\$170</u>

- c) Windydale's largest customer decides to exercise a \$15 million loan commitment. Show how the new balance sheet will appear if the bank uses the following liquidity risk strategies.
  - i. Purchased liquidity management. (4 marks)
  - ii. Stored liquidity management. (4 marks)
- d) Describe two (2) methods to measure liquidity risk. (4 marks)

**TURN OVER**

**QUESTION 6 (25 marks)**

- a) Define the term Daily Earnings at Risk (DEAR) and describe the three (3) measurable components of DEAR. **(8 marks)**

Alpha First Bank has an inventory of AAA-rated, 15-year zero-coupon bonds with a face value of \$500 million. The bonds currently are yielding 5.5 percent in the over-the-counter market. The historical mean change in daily yields is 0.0 percent and the standard deviation is 12 basis points.

- b) Calculate the modified duration of these bonds. **(2 marks)**
- c) Calculate the price volatility of these bonds if the potential adverse move in yields is 25 basis points. **(2 marks)**
- d) Calculate the DEAR for Alpha First Bank on its portfolio of bonds. **(4 marks)**
- e) Calculate the maximum adverse daily yield move given that we desire no more than a 5 percent chance that yield changes will be greater than this maximum. **(4 marks)**

**END OF QUESTION PAPER**