BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF BANKING AND FINANCE

MARKET AND LIQUIDITY RISK MANAGEMENT (BS 448)

DURATION: 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Answer any **four** questions altogether.
2. All questions carry 25 marks each.
3. Start answering each question on a new page.

QUESTION ONE

a) Describe the main sources of liquidity for financial Institutions in Zimbabwe. Recommend policy strategies that the Reserve Bank of Zimbabwe can adopt to mitigate against liquidity risk (15)

b) What guidelines should management keep in mind when it manages a financial firm`s liquidity position (10)

[25 marks]

QUESTION TWO

Suppose that each of two investments has a 0.9% chance of a loss of $10 million and a 99.1 % chance of a loss of $1 million. The investments are independent of each other.

a) What is the VaR for one of the investments when the confidence level is 99%? (5)

b) What is the expected shortfall for one of the investments when the confidence level is 99%? (5)

c) What is the VaR for a portfolio consisting of the two investments when the confidence level is 99%? (5)

d) What is the expected shortfall for a portfolio consisting of the two investments when the confidence level is 99%? (5)

e) Show that in this example VaR does not satisfy the sub-additivity condition whereas expected shortfall does. (5)

[25 marks]

QUESTION THREE

Portfolio A consists of a one-year zero-coupon bond with a face value of $2,000 and a 10-year zero-coupon bond with a face value of $6,000. Portfolio B consists of a 5.95-year zero-coupon bond with a face value of $5,000. The current yield on all bonds is 10% per annum (continuously compounded).

a) Show that both portfolios have the same duration. (5)
b) Show that the percentage changes in the values of the two portfolios for a 0.1% per annum increase in yields are the same. (5)
c) What are the percentage changes in the values of the two portfolios for a 5% per annum increase in yields? (5)
d) What are the principal differences among asset liquidity management, liability management and balanced liquidity management (10)

[25 marks]

QUESTION FOUR

Suppose that a trader has bought some illiquid shares. In particular, the trader has 100 shares of A, the bid is $50 and the offer is $60, and 200 shares of B, the bid is $25 and the offer $35.

a) Why does a bank need to keep track of the assets it has pledged as collateral as part of its procedures for managing liquidity funding risk? [10]
b) What are the proportional bid–offer spreads? [5]
c) What is the impact of the high bid–offer spreads on the amount it would cost the trader to unwind the portfolio? [5]
d) If the bid–offer spreads are normally distributed with mean $10 and standard deviation $3, what is the 99% worst case cost of unwinding in the future as a percentage of the value of the portfolio? [5]

[25 marks]

QUESTION FIVE

Citing relevant case studies, discuss the risk management mistakes that risk professionals should avoid to ensure stability of banks and other financial institutions.

[25 marks]

QUESTION SIX

a) A bank's position in options on the dollar–euro exchange rate has a delta of 30,000 and a gamma of −80,000. Explain how these numbers can be interpreted. (5)

b) The exchange rate (dollars per euro) is 0.90. What position would you take to make the position delta neutral? (5)

c) After a short period of time, the exchange rate moves to 0.93. Estimate the new delta. What additional trade is necessary to keep the position delta neutral? (5)

d) Assuming the bank did set up a delta-neutral position originally, has it gained or lost money from the exchange-rate movement? (5)

[25 marks]

END OF EXAMINATION