

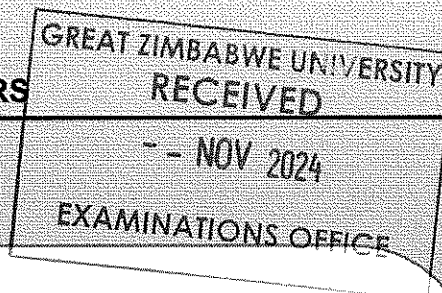


**HERBET CHITEPO SCHOOL OF LAW AND BUSINESS
SCIENCES**

DEPARTMENT OF ECONOMICS AND FINANCE

MAIN EXAMINATION

BACHELOR OF COMMERCE	PART 1 SEMESTER 2
COURSE	FINANCIAL MATHEMATICS
CODE	HBF 125
DATE	2024
DURATION	3 HOURS



INSTRUCTIONS TO CANDIDATES

- 1. THE PAPER COMPRISES 5 QUESTIONS.**
- 2. YOU ARE REQUIRED TO ANSWER ANY FOUR QUESTIONS.**
- 3. BEGIN THE ANSWER TO EACH QUESTION ON A FRESH PAGE OF THE ANSWER BOOKLET.**
- 4. NON-PROGRAMMABLE FINANCIAL OR SCIENTIFIC CALCULATORS ARE ALLOWED INTO THE EXAMINATION.**
- 5. CANDIDATES WILL OBTAIN CREDIT FOR SHOWING ALL WORKINGS.**

Question 1

Financial markets, financial intermediaries and financial regulators are the key components that make up the financial system. Explain the role of each of these within the Zimbabwean financial system.

Question 2

- 2.1 At an interest rate of 10%, what is present value of \$1m to be received in:
- i. 10 years (3 marks)
 - ii. 50 years (2 marks)
 - iii. 100 years (2 marks)
 - iv. 150 years (2 marks)
- 2.2 A paper company invests \$4m to clear a tract of land and plant some young pine trees. The trees will mature in 10 years, at which time the forest will have a market value of \$8m. What is the expected rate of return for the paper company's investment? (5 marks)
- 2.3 A small-scale businessman deposits money into his savings account at the beginning of each year, depending on the returns of the business. He deposits \$1000 in the first year, \$2000 in the second year, \$5000 in the third, and \$7000 in the fourth year. The account credits interest at an annual interest rate of 7%. What is the closest value of the accumulated money in the savings account at the beginning of year 4? (6marks)
- 2.4 A stock pays a constant dividend of \$8 at the end of each year for 20 years at a 25% required rate of return. Calculate the present value of the stock dividends. (5 marks)
- (25 marks)**

Question 3

- 3.1 LinG Motors' bonds have 10 years remaining to maturity. Interest is paid annually, the bonds have a \$1,000 par value, and the coupon interest rate is 8 percent. The bonds have a yield to maturity of 9 percent. What is the current market price of these bonds? (5 marks)
- 3.2 Define each of the following terms:
- i. Convertible bond (4 marks)
 - ii. Zero coupon bond (4 marks)
 - iii. Junk bond (4 marks)
 - iv. Reinvestment rate risk (4 marks)
 - v. Default risk (4 marks)
- (25 marks)**

Question 4

Identify and describe any 4 money market instruments, highlighting how they are valued as well as the advantages and disadvantages of using each. **(25 marks)**

Question 5

A project has a cost of capital of 15% and the following cashflows:

Year	Project LKP
0	(20,000)
1	5,000
2	5,000
3	5,000
4	5,000
5	5,000

Determine:

- i. Discounted/Modified Pay Back Period (5 marks)
 - ii. Net Present Value (5 marks)
 - iii. Discuss non-financial factors to consider when evaluating projects. (15 marks)
- (25 marks)**