



**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF THE BUILT ENVIRONMENT**  
**DEPARTMENT OF QUANTITY SURVEYING**  
**CONSTRUCTION FINANCE**  
**BQS 4203**

**Main Examination Paper**

**February 2025**

This examination paper consists of **three (3)** pages

**Time Allowed:** 3 hours  
**Total Marks:** 100  
**Special Requirements:** NIL  
**Examiner's Name:** Mr. T. Dzimiri

**INSTRUCTIONS**

1. Answer **Question One** and any other **three (3)**.
2. Use of calculators is permissible.

**MARK ALLOCATION**

<b>QUESTION</b>	<b>MARKS</b>
1.	25
2.	25
3.	25
4.	25
5.	25
<b>TOTAL</b>	<b>100</b>

### Question One (Compulsory)

a) Discuss this assertion "Debt is good; Debt is evil". [5 marks]

b) The National University of Science and Technology (NUST) in Zimbabwe is considering expanding its campus to accommodate increasing student enrolment. The proposed expansion project involves land acquisition of ZWG 8 million (10 hectares of land). Demolition of existing building: ZWG 1.2 million. Building construction costs:

- Year 1: ZWG 10 million (foundation and structural work)

- Year 2: ZWG 12 million (installation of electrical, plumbing, and HVAC systems)

- Year 3: ZWG 8 million (finishes, including floors, walls, and ceilings)

Equipment and furniture: ZWG 4 million (replacement every 10 years, repairs ZWG 900 000.00 every 5 years)

This expansion will increase student enrolment by 3,000, generating additional tuition fees of ZWG 3.5 million per annum, resulting in improved academic performance and increased graduation rates, valued at ZWG 1.2 million per annum. Enhanced research capabilities: 30 new research laboratories, generating additional research grants of ZWG 2.5 million annually. More so, there will be job creation: 150 new staff members, resulting in increased economic activity and tax revenue, valued at ZWG 1.5 million per annum. Increased property value: ZWG 5 million increase in property value, resulting in increased rental income and capital gains.

Using a cost-benefit analysis framework, evaluate the viability of the proposed expansion project considering that the lifespan of the building will be 60 years. [20 marks]

[25 marks]

### Question Two

Construction works require proper planning and sequencing of events to enhance project success. With the aid of examples, discuss how you would manage working capital at a given site.

[25 marks]

### Question Three

a) A construction company, BuildCo, needs to raise USD 10 million to finance a new project. The company has three options to raise funds:

Option 1: The company can issue 10-year bonds with a face value of USD 1,000 and an annual coupon rate of 8%. The bonds will be issued at par value.

Option 2: The company can issue 2 million new shares at USD 5 per share.

Option 3: The company can take a 10-year loan from a bank at an annual interest rate of 12%.

Evaluate and justify which option is best for BuildCo, assuming a tax rate of 30% and a cost of equity of 15%.

[15 marks]

- b) Besides options in (a) above, Discuss any other **two (2)** ways that can assist BuildCo in raising the funds.

[10 marks]

[25marks]

#### Question Four

- a) ABC Construction Company is planning to build a new office complex in the downtown area. The project requires a significant amount of steel, which is currently trading at USD 500 per ton. The company's management is concerned about potential price fluctuations in the steel market and wants to hedge against possible price increases.

ABC Construction Company enters into a call option contract with a strike price of USD 550 per ton and a premium of USD 20 per ton. The contract expires in 6 months. The steel price increases to USD 600 per ton at expiration.

Instead of a call option, ABC Construction Company enters into a put option contract with a strike price of USD 450 per ton and a premium of USD 15 per ton. The contract also expires in 6 months. The steel price decreases to USD 400 per ton at expiration.

- i) Determine the payoff for both options.  
ii) Explain using illustrations how these two options work.
- b) Differentiate between options and swaps contracts, giving examples from the construction industry.

[8 marks]

[7 marks]

[10 marks]

[25 marks]

#### Question Five

- a) Management of Epson Construction has demanded more benefits from the shareholders of the company. The shareholders agreed to the proposal and have approached you for advice. Advise on the best options they can achieve the best relation with their management.
- b) Upcoming researchers in the Department of QS have concluded that lease financing has increased in the Zimbabwean construction industry, unlike the use of consortiums. Discuss the assertion above.

[12 marks]

[13 marks]

[25 marks]

**END OF EXAMINATION**