

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

BACHELOR OF QUANTITY SURVEYING (HONOURS) DEGREE

PART IV SECOND SEMESTER EXAMINATIONS MAY 2012

CONSTRUCTION FINANCE - AQS4203

Time: 3 Hours

Total marks: 100

INSTRUCTIONS TO CANDIDATES

Answer any FOUR (4) questions.

Start the answer to each full question on a fresh page.

Show all workings

Questions may be written in any order, but must be legibly numbered.

INFORMATION FOR CANDIDATES

Each question carries 25 marks

The number of the marks is given in brackets [] at the end of each question or part question.

The businesses in this question paper are intended to be fictitious.

QUESTION 1

- a) Distinguish financial appraisal from economic appraisal. [4 marks]
- b) You have been contracted by the Bulawayo City Council which plans to embark on the expansion of Gwanda Road. The project is intended to reduce the number of fatal accidents due to the fact that the existing dual carriage way cannot accommodate the increased volume of traffic. The increased volume of traffic is attributable to the reduction in duty on imported vehicles.

The expansion of the road is going to reduce fatality rate by 40% from the current 10 lives a month. In addition, commuters will now be getting into Bulawayo 30 minutes earlier everyday than the previous 1 hour 15 minutes they used to spend, due to congestion.

You establish that, most residents in Bulawayo are demanding \$1,000 per week to go and work in the land-mines filled Ceremonial Island, where 200,000 people are dying a day because of stepping on land mines. You further establish that instead of spending an hour in a queue to get a free food hamper enough to feed a family of six for a month, most residents of Bulawayo prefer paying \$100 to get the hamper without queuing.

The estimated cost of land is \$10,000 per hectare and the road expansion will require the Bulawayo City Council to purchase an additional 1,000 ha. The construction of the road shall last two years at an annual cost of \$250,000.

You are told that the benefits of the project are expected to accrue for five years following the completion of the expansion of the road. And that the real interest rate on long-term bonds is 10% per annum and inflation is 3% annually.

You are required to advise the Bulawayo City Council if it is worthwhile to undertake the expansion of Gwanda Road. [21 marks]

QUESTION 2

- a) You have been asked to conduct social/economic appraisal for Happy Moments (Private) Limited intend to acquire the latest ozone friendly manufacturing plant at a cost of \$250,000. You are given the following abridged income statement for the company for the year ended 31 December 2011;

| | |
|------------------------------|---------|
| SALES | 400,000 |
| COST OF SALES | 200,000 |
| GROSS PROFIT | 200,000 |
| OPERATING EXPENSES | 90,000 |
| NET PROFIT BEFORE TAX | 110,000 |
| TAXATION | 35,000 |
| NET PROFIT AFTER TAX | 75,000 |

External benefits of using the plant are estimated at \$65,000 per year. Calculate the Social Rate of Return for the project. [8 marks]

- b) Explain the advantages of preference shares from the company's point of view. [5 marks]

- c) Briefly explain the different sources of working capital to the company. [6 marks]
- d) State and explain any four long-term debt instruments [6 marks]

QUESTION 3

You have been asked to conduct an appraisal of the following projects, whose details are given below,

| Year | Project A | PROJECT B |
|-------------|---------------------|---------------------|
| 0 | Investment \$20,000 | Investment \$10,000 |
| | <i>Cash flows</i> | <i>Cash flows</i> |
| 1 | 5,000 | 1,000 |
| 2 | 7,000 | 1,000 |
| 3 | 8,000 | 6,000 |
| 4 | 10,000 | 6,500 |
| 5 | 12,000 | 7,000 |

For this purpose you establish that the market interest rate is 20% per annum and annual inflation rate is 8%.

- a) Which project would you select based on the payback period method? Explain your answer. [2 marks]
- b) Which project would you undertake between project A and B, based on the precise real cost of capital. [9 marks]
- c) Calculate the Internal Rate of Return (IRRs) of the two projects and interpret your answers. [6 marks]
- d) Explain the qualities of an ideal investment. [8 marks]

QUESTION 4

- a) Jones invested some money and is expecting \$15,000 after 3 months, how much did he invest given that the simple interest rate is 10% per quarter? [5 marks]
- b) You invest \$12,000 for 6 years at 10% per annum compounded semi-annually. What is the value of your investment after 6 years? [5 marks]

- c) Enumerate the key activities of the Financial Manager of a private firm. [10 marks]
- d) Briefly define the following terms;
- i. Opportunity cost [1 mark]
 - ii. Cost- Benefit Analysis [1mark]
 - iii. Social Rate of Return [1 mark]
 - iv. Sensitivity Analysis [1 mark]
 - v. Scenario analysis [1mark]

QUESTION 5

a) Springbok (Private) Limited is considering a project to build a new plant.

- The plant would begin operations on 01/01/2005, and the first operating cash flows would occur on 12/31/2005 (the company’s policy is to assume that operating cash flows occur at the end of each year).
- The marginal state tax rate is 40%.
- The cost of capital is 12%. The project is assumed to have the same risk as an average project so the 12% should be used as the hurdle rate.
- The project’s estimated economic life is 4 years.
- Annual sales brought by the new plant are estimated at \$40 million.
- Variable manufacturing costs would total 60% of sales.
- Fixed overhead costs (excluding depreciation) would be \$5 million a year. Investments (all initial investments would occur on 12/31/2004).
- A building would be bought at a cost of \$12 million. For depreciation purposes the building would fall into the 39-year class. The building would have a market value of \$7.5 million and a book value of \$10.908 million at the end of the project.
- The necessary equipment would be purchased at a cost of \$8 million. It would fall into the 5-year class. It would have a market value of \$2 million and a book value of \$1.36 million at the end of the project.
- Net working capital: \$6 million. It will be fully recovered at the end of the project.

Relevant depreciation rates are as follows:

| Year | 1 | 2 | 3 | 4 |
|----------------|------|------|------|------|
| 39-year assets | 1.3% | 2.6% | 2.6% | 2.6% |
| 5-year assets | 20% | 32% | 19% | 12% |

Required.

- i) Estimate the initial investment outlay. [2 marks]
- ii) Estimate the operating cash flows. [10 marks]
- iii) Estimate the terminal year cash flow. [9 marks]
- iv) Make the investment decision using the Net Present Value (NPV) method. [4 marks]

QUESTION 6

Shareholders can take actions that are at variance with the interest of corporate lenders such as banks. Likewise managers can take actions that are at variance with the interest of corporate lenders.

Required:

- a) Describe actions that shareholders can take that are at variance with interests of corporate lenders. (Assume that management and shareholders are the same party). [9 marks]
- b) Describe actions that management can take that are at variance with the interests of the shareholders. [8 marks]
- c) What forces or mechanisms might serve to reduce potential conflicts between?
 - i Shareholders and corporate lenders and [4 marks]
 - ii Management and shareholders [4 marks]