

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT
DEPARTMENT OF QUANTITY SURVEYING
PART IV SECOND SEMESTER EXAMINATIONS – JUNE 2010
CONSTRUCTION FINANCE - AQS4203

Time: 3 Hours

Total Marks: 100

Instructions

Answer any FOUR (4) questions.

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

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

QUESTION ONE

Roundhead Property Developers Ltd has an opportunity to invest in two mutually exclusive projects, that is, a Town House project or a Hotel project. The cost of undertaking either of the two is \$10,000,000. The estimated cash inflows of the two projects are as follows;

Year	Cash inflows for Town House Project (USD)	Cash inflows for the Hotel Project (USD)
1	2,450,000	2,000,000
2	3,100,000	2,000,000
3	4,500,000	2,000,000
4	3,000,000	3,000,000
5	1,850,000	3,000,000

The prevailing interest rate on long-term bonds is 14% per annum and the annual inflation rate is 4%. The project has a zero residual value. Ignore taxation. Use the precise real interest rate.

You are required, stating the reasons for your decision, to advise Roundhead Construction, on which project to undertake based on;

- a) Payback method (5 marks)
- b) Discounted Payback method (5 marks)

- c) The Net Present Value method (5 marks)
- d) Internal Rate of Return method (5 marks)
- e) Accounting Rate of Return method assuming the cash inflows given above are equivalent to the annual after-tax income (5 marks)

QUESTION TWO

- a) Mr Longhand is a young financial director of XYZ Construction Ltd. Although he enjoys his work, he wants to retire at the age of 35 and go sailing in Hawaii; he is currently 25 years old. He estimates that he will need to have \$120,000 to buy a yacht and an additional \$20,000 to pay for stock and mooring costs. Mr Longhand intends to make equal annual payments into a bank account on which he can earn 15% compounded quarterly.
 - i) What amount must Mr Longhand pay annually to achieve his objective when he retires? The first payment is to be made at the end of the first year. (5 marks)
 - ii) What amount must Mr Longhand pay annually to achieve his objective when he retires? If the first payment is to be made at the beginning of the first year. (5 marks)
 - iii) Instead of making equal annual payments, Mr Longhand wants to make one lump sum payment today, investing it at 15% interest compounded semi-annually. What should this lump sum be? (5 marks)
 - iv) Write brief notes on any four financial instruments that can be used for raising finance to fund construction projects? (10 marks)

QUESTION THREE

- a) Cooldown Construction Equipment Ltd pays an instalment of \$1,000, 000 every year into an investment account. The money is intended to purchase an excavator after 5 years. If the interest rate on the investment is 15% per annum, compounded semi-annually, what is the cost of the excavator? (10 marks)
- b) Explain the scope behind the agency conflict between the contractor and the owners/promoters of a project. (5 marks)
- c) Explain why a Quantity Surveying company might hold cash when it could earn a much higher return on operating assets (5 marks)
- d) Explain the economic importance of a secondary market for financial assets. (5 marks)

QUESTION FOUR

- a) Define the term “project” and explain the stages that are involved in a project cycle. (15 marks)
- b) JJ Project Consultants invested their excess cash at the SNN Bank at 9% per annum, calculate the interest they will receive on 3 December, on the following deposits; \$450,000 on 1 February, \$600,000 on 1 April, \$250,000 on 1 July and \$400,000 on 15 September. (10 marks)

QUESTION FIVE

- a) Define the following terms ,
- i) Built Operate Own Transfer (BOOT) (3 marks)
 - ii) Built Operate Own (BOO) (3 marks)
 - iii) Design Build Finance Operate (DBFO) (3 marks)
 - iv) Buy Build Operate (BBO) (3 marks)
- b) Distinguish financial appraisal from economic appraisal. (3 marks)
- c) Explain why Net Present Value and Internal Rate of Return capital budgeting techniques are preferred to other methods of project evaluation. (10 marks)

QUESTION SIX

With the aid of practical examples from the construction industry distinguish sensitivity analysis from scenario analysis. (25 marks)

END OF EXAMINATION