NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF BUILT ENVIRONMENT

DEPARTMENT OF QUANTITY SURVEYING

PART II EXAMINATIONS JANUARY – 2011

CONSTRUCTION ECONOMICS – AQS2108

Time: 3 hours Total Marks: 100

INSTRUCTIONS:

Answer any four questions. All questions carry equal marks.

QUESTION ONE

Explain what is meant by construction economics and what it seeks to achieve in the construction industry. (25 marks)

QUESTION TWO

a) Service records for a specific piece of production equipment indicates that a replacement machine will have first years maintenance costs of approximately \$1 000 and these costs will increase by \$200 per year for each additional year of service. Assuming the equipment is to be in service for 10 years and using an interest rate of 15%, determine the maximum amount which should be paid for a lifetime maintenance contract at the time the equipment is purchased. (5 marks)

b) XYZ Investments Private Limited estimates that it needs to repaint the exterior of its highrise office block in 3 years time. At today's prices it is estimated that it would cost \$5 000 to repaint the exterior and that prices are likely to increase at 12% per annum. The company has already placed \$1 000 into a repainting fund. Advise the company of how much it will have to invest in the fund at the end of each year in order to accumulate the estimated funds it requires to undertake this exercise if it can invest at 8.5% per annum tax free. (10 marks)

c) Explain the concept of time-value of money mechanics and show its relevance to the construction industry. (10 marks)

QUESTION THREE

a) A building which is to be demolished in 25 years time requires repainting now and will also require repainting every 5 years until demolition. The cost of each repainting is estimated at$300. In 10 years time $200 is to be spent on alterations, and $150 will be spent at the end of each year on sundry repairs. What sum must be set aside now to cover the cost of all work, assuming the rate of interest obtainable on investment and ignoring the effect of taxation?

(15 marks)

b) Explain the concept of life-cycle costing. (10 marks)

QUESTION FOUR

A company with a cost of capital of 18% is considering investing in a project with the following

cash flows.

Year	**Cash**
Initial capital outlay	20 000
1	8 000
2	7 000
3	6 500
4	6 000
5	5 500

Calculate the NPV and the IRR of the project. On the basis of your calculation is the

project acceptable? Give reasons (25 marks)

QUESTION FIVE

a) Briefly explain the traditional methods of investment appraisal (Pay back and Accounting rate of Return) (10 marks)

b) Write brief notes on the following:-

   i) Return on capital employed (ROCE) . (5 marks)

   ii) Depreciation (5 marks)

   iii) Sensitivity analysis (5 marks)

END OF EXAMINATION