NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

BACHELOR OF QUANTITY SURVEYING (HONOURS) DEGREE

PART II FIRST SEMESTER EXAMINATIONS – APRIL 2009

CONSTRUCTION ECONOMICS AQS 2108

Time: ***3 Hours*** ***Total Marks: 100***

INSTRUCTIONS

Answer ANY Four Questions.
All Questions Carry Equal Marks**.**

Question 1

a) Explain the following economic concepts
   i) Scarcity (5 marks)
   ii) Opportunity cost (5 marks)
   iii) Competing ends (5 marks)

b) Discuss the importance of the construction industry to national economy (10 marks)

Question 2

A client has an option to invest in one of the following projects whose cash flows are shown below. Both projects require an initial investment of $25 000 (Twenty five thousand dollars).

Year	**Project A**	**Project B**
	$	$
1	8000	6500
2	7000	6500
3	6000	6500
4	5000	6500
5	4000	6500

The firm's cost of capital is 12%. Calculate the following
   i) Payback period (6 marks)
   ii) NPV (Net Present Value) (8 marks)
   iii) Internal Rate of Return (IRR) (8 marks)

From the above, which option is most economic under Payback, NPV and IRR? (3 marks)

Question 3

a) A building to be demolished in twenty-five years time requires repainting now and will also require repainting every five years until demolition. The cost of each repainting is estimated at $300 000. In ten years time $2 000 000 is to be spent on alterations, and $150 000 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 the work, assuming the rate of interest obtainable on investment is six percent (6%), and ignoring taxation. (15marks)

b) John has been given a legacy by her aunt Anna which comprises of a property receiving rent, in arrears, of $150 000 per annum. This is the full open market rent at today's rate. John, however, is unable to touch the earned money from the investment for seven years. John, however, may reinvest the rent at 10% per annum. How much will the rents have accumulated to after seven years? (10 marks)

Question 4

a) Explain concept of Investment Appraisal showing where it is used and the steps that are followed in investment appraisal. (15 marks)

b) Discuss the Accounting Rate of Return method of investment appraisal (10 marks)

Question 5

a) Differentiate between 'life cycle costs' and 'costs in use' when evaluating building projects (10marks)

b) A choice is available to use softwood, hardwood or aluminium windows for a detached house. The economic life of the building is 60 years. Discount rate 8%. Evaluate the proposals. (15 marks)

Description	**Softwood**	**Hardwood**	**Aluminium**
Initial cost	$25000	$45000	$55000
Renewal	$26500 (every 15 years)	$46500 (every 30 years)	-
Redecoration	$1000 (every 5 years)	$500 (every 5 years)	-
Cleaning	$500 (per annum)	$500 (per annum)	$500 (per annum)

END OF EXAMINATION