NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF QUANTITY SURVEYING
BACHELOR OF QUANTITY SURVEYING (HONOURS) DEGREE

PART II SUPPLEMENTARY EXAMINATIONS – OCTOBER 2009

AQS 2108 –CONSTRUCTION ECONOMICS

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) Choice (5 marks)
iii) Resource Allocation (5 marks)

b) Explain what you understand by *Construction economics* showing what it is concerned with and what it seeks to achieve (10 marks)

Question 2

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

Year	**Cash flow**
Initial capital outlay (Now)	2 000 000
1	800 000
2	700 000
3	650 000
4	600 000
5	550 000

Calculate the NPV and IRR of the project. On the basis of your calculation is the project acceptable? Give reasons. (25 marks)

Question 3

a) Mr Jones has undertaken to purchase Mr. Smith's house for $100 000 in 3 years time, how much must Mr. Jones put aside each year to accumulate sufficient funds to purchase the house if he can invest at 9% tax free. (5 marks)
b) 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 rate of interest obtainable on investment is six percent (10 marks)
c) Explain life cycle costing showing its importance in evaluating alternative building projects (10 marks)

Question 4

What is meant by investment appraisal? Explain the Payback method and the Accounting Rate of Return techniques of investment appraisal. (25 marks)

Question 5

Calculate the comparative life-cycle costs of the following buildings using only the data provided. The opportunity cost of capital is 6%. Both buildings provide a similar amount of accommodation and the life expectancy of the buildings is expected to be 60 years.

Description	Building A	Building B
Initial cost	$750000	$450000
Repairs	$5000 (every 5 years)	$15000 (every 5 years)
Maintenance	$3000 per annum	$9000 per annum
Heating, Lighting etc	$12000 per annum	$21000 per annum
Major modifications (every 20 years)	-	$100000
Demolition and Disposal	$30000	$45000

Which building project is economically better? Support your answer. (25 marks)