

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**FACULTY OF BUILT ENVIRONMENT**

**DEPARTMENT OF QUANTITY SURVEYING**

**PART II EXAMINATIONS FEBRUARY – 2010**

**CONSTRUCTION ECONOMICS – AQS2108**

Time: 3 hours

Total Marks: 100

**INSTRUCTIONS:**

Answer any four questions. All questions carry equal marks.

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**QUESTION ONE**

- a) What are the four characteristics of the construction industry which separate it from other manufacturing industry. (4 marks)
- b) The construction industry can be used by government as a regulator of the economy. In your own view, and with aid of examples, what is the importance of the construction industry to the economy. (9 marks)
- c) Construction work is facilitated by making available a bundle of scarce resources. Identify and explain these resources and show how scarcity of these resources may impinge on construction work. (12 marks)

**QUESTION TWO**

- a) Explain the concept of resource allocation in the following economies. (15 marks)
- i) free market
  - ii) command economy
  - iii) mixed economy
- b) Write brief notes on the following (10 marks)
- i) Feasibility study
  - ii) sensitivity analysis

### **QUESTION THREE**

Compare and contrast cost-in-use of the following alternative building schemes.

(25 marks)

#### **Scheme A**

Total cost of building is \$50 000 including Architect and Surveyor's fees on a site costing \$10 000. Annual running costs are estimated at \$1 500. Certain services and furnishings will require replacing at a cost of \$6 000 every 20 years. Other services have an estimated working life of 30 years and a replacement cost of

\$8 000.

#### **Scheme B**

The total cost of building is \$65 000 including Architect and Surveyor's fees on a site costing \$10 000. Annual running costs are estimated at \$1 200. Certain services and furnishings will require replacing at a cost of \$4 000 every 20 years. Other services have an estimated working life of 30 years and a replacement cost of

\$5 000.

In both cases the estimated life of the building is 60 years. Interest is 6% and an annual sinking fund of 3%.

### **QUESTION FOUR**

a) Explain investment appraisal in the building industry showing its benefits to the client.

(15 marks)

b) A small contracting firm has seen the opportunity of buying a site with planning permission to build a nursing home. In outline the estimated costs and benefits of the scheme are as follows:

Inclusive site costs   \$   15 000

Construction costs     \$  840 000

Value on completion \$1 400 000

A bank is to be approached to provide short term funding for the project

over the twelve months that will be taken to build.

Assuming a rate of interest of 16% and that construction costs will be incurred

monthly on a uniform basis and including any other considerations that you consider to be relevant, advise the firm as to whether this is an opportunity worth pursuing. (10 marks)

**QUESTION FIVE**

- a) Assume that an endowment was originally set up to provide a \$10 000 first payment with payments decreasing by \$1 000 each year during the 10 year endowment life. What annual payment for 10 years would be equivalent to the original endowment plan if interest is 8%. (5 marks)
- b) Johns wishes to invest rent received from his tenant in order to accumulate sufficient funds for major refurbishment works at the end of the tenant's lease. The tenant still has 7 years remaining of his lease and he pays rent of \$6 150 per annum in arrears. How much will the rent have accumulated to an interest rate of 11% per annum by the end of lease. (5 marks)
- c) Explain the following investment appraisal techniques
- i) Net present value
  - ii) Payback method (15 marks)