

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF CIVIL AND WATER ENGINEERING
FACULTY OF INDUSTRIAL TECHNOLOGY
BACHELOR OF ENGINEERING (HONOURS) DEGREE
PART III SECOND SEMESTER EXAMINATION-JUNE 2010
CONSTRUCTION MANAGEMENT AND TECHNOLOGY – TCW 3206**

INSTRUCTIONS

Answer any *four* (4) questions.

Time : 3 hours
Total Marks: 100

QUESTION 1

(a) Illustrate with aid of diagrams the following three types of foundations showing these can possibly be employed.

(i) Strip foundation (4 marks)

(ii) Pad foundation (4 marks)

(iii) Pile foundation (4 marks)

(c) What is bearing of soil and how can it be improved. (5 marks)

(d) Identity five components of a solid ground floor and explain the purpose they serve. (8 marks)

QUESTION 2

(a) Outline the roles played by the following construction professionals.

(i) Architect (4 marks)

(ii) Quantity Surveyor (4 marks)

(iii) Structural Engineer (4 marks)

(b) List six drawings that can be used for building realization (6 marks)

(c) What is the importance of a site plan? (3 marks)

(d) Draw an organizational structure that influences project initiation and implementation. **(4 marks)**

QUESTION 3

(a) What are the five components of Site Safety **(5 marks)**

(b) You are employed by a contractor and assigned to work as a site engineer. What are the major causes of fatalities arising from construction work likely to occur to the public? **(5 marks)**

(c) How can the above risks be minimized to the general public? **(6 marks)**

(d) Identify and discuss any three methods of demolition. **(9 marks)**

QUESTION 4

(a) List any five properties of a good damp proofing material. **(5 marks)**

(b) With the aid of diagrams discuss any one method of water proofing basements. **(10 marks)**

(c) By giving examples distinguish between temporary and permanent exclusion of ground water. **(10 marks)**

QUESTION 5

(a) Distinguish the different between obsolescence and depreciation. **(5 marks)**

(b) Given that Machine A Cost \$30 000 and has an economic life of 7 years, while Machine B cost \$18 000 and has an economic life of 3 years. Assuming that scrap value for both machine is 0, Which is the best machine to buy for a project of 4 years. **(10 marks)**

(c) A dumper with a capacity of 25m³ is used to ferry gravel from a borrow pit to a construction site which are 5km apart. How many dumpers are required to efficiently service the task of 140m³/hr given the following information:

	Borrow pit	Construction Site
Loading time	0.5hrs	-
Off loading time	-	0.5hrs
Load velocity	10km/hr (going)	20km/hr (returning)

(10 marks)

QUESTION 6

Given the following

Activity	Immediate Predecessor	Duration (Weeks)
A	-	5
B	-	6
C	A	4
D	A	3
E	A	1
F	E	4
G	D,F	14
H	B,C	12
I	G,H	2

Required:

- (a) Draw the network diagram for the project. **(10 marks)**
- (b) Which activities lie on the critical path. **(2 marks)**
- (c) What is the expected project duration. **(3 marks)**
- (d) If activity F is delayed by 1 day what will happen to the project. **(4 marks)**
- (e) Advise by giving examples how you can deal with the case in (d) above to meet project completion time. **(6 marks)**