



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF CIVIL AND WATER ENGINEERING

CONSTRUCTION MANAGEMENT AND TECHNOLOGY

TCW3206

Main Examination Paper

MAY 2014

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: Nil

Examiner's Name: Mr M Mukawa

INSTRUCTIONS

1. Answer any four (4) questions
2. Each question carries 25 marks
3. Where information is insufficient, candidates should make stated assumptions

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25

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Question 1

- (a) Outline the purpose of carrying out subsoil investigation **(4 marks)**
- (b) Discuss three methods of subsoil investigation **(15 marks)**
- (c) Differentiate between strip foundation and raft foundation **(6 marks)**

Question 2

The following information was collected from a construction project

Activity	A	B	C	D	E	F	G	H	I	J	K	L
Predecessor	-	A	B	B	B	E	D	C	G,H	E	C,J	I,K
Duration (in weeks)	5	3	8	6	10	2	5	1	7	3	3	2

- (a) Using either the activity on Arrow/Node technique, develop the network diagram showing the relationship of the activities shown in table above **(12 marks)**
- (b) Determine the Critical path **(5 marks)**
- (c) Find the project duration **(3 marks)**
- (d) The Project Engineer has issued an instruction for additional concrete beams and this is estimated to take 1 week. The client insists that he want the project completed as originally planned. Advise on the possibility of the project to be completed on the initial planned date. **(5marks)**

Question 3

- (a) Identify three causes of accidents on construction sites and discuss the safety measures required to avoid each one of them **(15marks)**
- (b) Explain the importance of building regulations in construction **(5 marks)**
- (c) Draw a site layout diagram **(5marks)**

Question 4

- (a) Explain the three methods of acquiring construction equipment **(6marks)**
- (b) State the advantages of owning construction plant **(4 marks)**
- (c) Identify and discuss any three earthmoving and excavation plant clearly stating their uses **(15 marks)**

Question 5

- (a) Discuss the process of awarding a tender through the selective tendering method **(13marks)**
- (b) Describe three conditions of discharging a contract **(12marks)**

Question 6

- (a) Outline any five characteristics of a valid contract **(5marks)**
- (b) Explain any two types of contracts used in civil engineering works **(6marks)**
- (c) Discuss giving examples two conditions under which extension of time can be granted **(8marks)**
- (d) Explain three methods of valuing variations of construction work **(6marks)**

END OF EXAMINATION