

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

INSTRUCTIONS

Answer any four questions.

Time : 3 hours
Total Marks: 100

QUESTION 1

(a) Illustrate with aid of diagram 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 solids ground floor and explain the purpose they save.

QUESTION 2

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

(i) Architect **(4 marks)**

(ii) Quantity Surveyor **(4 marks)**

(iii) Pile foundation **(4 marks)**

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

(c) What is the importance of a site plan? **(4 marks)**

(e) Draw an organizational structure that infl

(b) Define the following terms in relation to groundwater: (i) Pore pressure,

(ii) Aquiclude, (iii) Aquifer, (iv) Hydraulic conductivity, (v) Transmissivity, (vi) Specific yield, (vii) Specific retention, (viii) Porosity, (ix) Isotropy and (x) Anisotropy **(12 marks)**

(c) With the aid of illustrative diagrams, briefly explain what is meant by:

(i) Confined aquifer. **(3 marks)**

(ii) Unconfined aquifer **(3 marks)**

(iii) Artesian well **(3 marks)**

(d) What are the limitations of Darcy's law groundwater flow **(2 marks)**

QUESTION 4

(a) Define infiltration. **(2 marks)**

(b) What are the factors which affect infiltration? **(8 marks)**

(c) State any two methods used to determine infiltration. **(2 marks)**

(d) Briefly explain what is meant by infiltration capacity? **(2 marks)**

(e) State the Horton's equation used to determine infiltration. **(3 marks)**

(f) Discuss the limitations of Horton's equation. **(8 marks)**

