

**SIR ARTHUR LEWIS COMMUNITY COLLEGE**  
DIVISION OF TECHNICAL EDUCATION AND MANAGEMENT STUDIES

EXAMINATION SESSION : May 2014 Final Examination

TUTOR(S) : MARGARET G SIFFLET

PROGRAMME TITLE : CONSTRUCTION ENGINEERING  
QUANTITY SURVEYING

PROGRAMME CODE : 3BD-CON -AD  
3BD-QUS- AD

COURSE TITLE : CIVIL TECHNOLOGY

COURSE CODE : BLT 107

CLASS(ES) : YEAR

DATE : May 14<sup>TH</sup>, 2014

COMMENCEMENT TIME : 9:00 AM

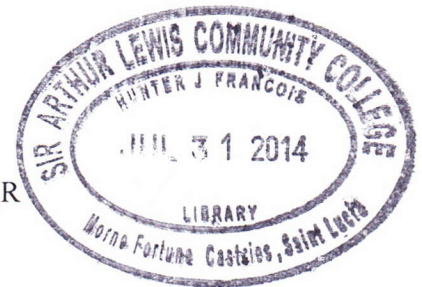
DURATION : 3HRS

INVIGILATOR(S) : H. NICHOLAS, C. ALEXANDER

ROOMS : TRB-LAB



# C44



**INSTRUCTIONS**

There are seven (7) questions on this examination paper.

Answer any four (4) questions.

Write only your **ID number** on each page of the answer sheet.

You should have the following: pen, pencil,, eraser and ruler

**1a** The following activities are involved in the construction of Flexible Road Pavements. With the aid of diagrams (where necessary) describe them fully.

- (i) Site clearance
  - (ii) Site stripping
  - (iii) Compaction
  - (iv) Subgrade shaping
- (16 marks)

**1b** Name and briefly describe the different layers in a flexible road pavement (6 marks)

**1c** List the conditions that will determine the thickness of the various layers in such a pavement. (3 marks)

**2a** List the steps required to lay a dry-bound macadam (7 marks)

**2b** Briefly indicate the difference between the dry bound macadam and the water bound Macadam. (8 marks)

**2c** What function does a base course serve when surfacing and indicate the materials used for this course. (10 marks)

**3a.** Define soil stabilisation (4 marks)

**3b** List the processes involved in soil stabilisation (5 marks)

**3c** Describe in detail any two of the processes listed in 3b (above) (16 marks)

- 4a** Briefly describe the following types of wastewater  
(i) Domestic    (ii) Industrial    (iii) Groundwater    (iv) Meteorological    (12 marks)
- 4b** Explain the following and how it works  
(i)    A landfill    (6 marks)  
(ii)    A sewerage plant    (7 marks)
- 5a** List the factors which contribute to the failure of a retaining wall    (6 marks)
- 5b** Describe with the aid of well labelled diagrams  
(i)    Bearing soil failure  
(ii)    Material failure    (12 marks)
- 5c** Draw and annotate a Brick Retaining wall    (7 marks)
- 6a** Define a bridge    (2 marks)
- 6b** What are the main factors to be considered when designing and constructing a bridge  
(3 marks)
- 6c** Name five types of bridges    (5 marks)
- 6d** Describe in detail three types of bridges    (15 marks)
- 7a** What is the purpose of a water retaining structure    (4 marks)
- 7b** Name three types of dams    (3 marks)
- 7c** Describe in detail the three types of dams mentioned in 7b    (18 marks)

**End of Examination**