THE TECHICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR BACHELOR OF ENGINEERING IN BUILDING & CIVIL ENGINEERING AND BACHELOR OF SCIENCE IN CIVIL ENGINEERING

ECE 2203: FLUID MECHANICS I

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: JULY 2013
TIME: 2 HOURS

<u>**Instructions to Candidates:**</u>
You should have the following for this examination
- *Answer Booklet*

This paper consist of **FIVE** questions
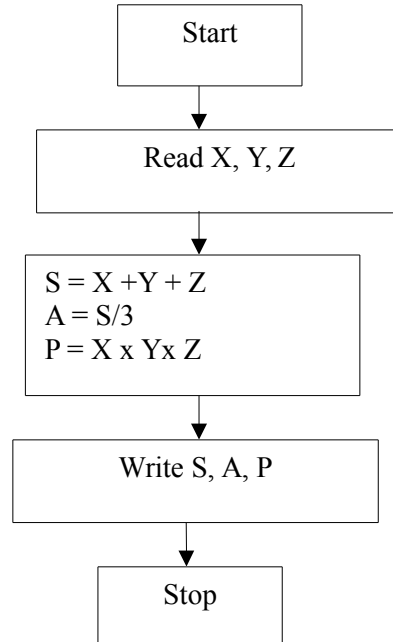Answer any **THREE** questions. Question **ONE** is Compulsory

Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages
Question One (Compulsory - 30 Marks)

a) Briefly explain how the following factors that affect the choice of a programming language that one would opt to use (10 marks)
   i. Reliability
   ii. Scalability
   iii. Maintainability
   iv. Portability
   v. Performance

b) Briefly describe the following types of computer languages stating the advantages and disadvantage of each.
   i. Machine language
   ii. Assembly language
   iii. High level language (12 marks)

c) Differentiate between the following terms as used in programming (8 marks)
   i. Top-bottom and bottom-up development strategies
   ii. Structured and Object-Oriented Programming

Question Two (15 marks)

a) Rewrite the below flowchart using:
   i. Pseudo code
   ii. While loop (10 marks)

```
                    ┌─────────────┐
                    │    Start    │
                    └─────────────┘
                           │
                           ▼
                 ┌───────────────────┐
                 │   Read X, Y, Z    │
                 └───────────────────┘
                           │
                           ▼
                 ┌───────────────────┐
                 │ S = X +Y + Z      │
                 │ A = S/3           │
                 │ P = X x Yx Z      │
                 └───────────────────┘
                           │
                           ▼
                 ┌───────────────────┐
                 │   Write S, A, P   │
                 └───────────────────┘
                           │
                           ▼
                    ┌─────────────┐
                    │    Stop     │
                    └─────────────┘
```

b) Define algorithms and sate any **FIVE** properties of algorithms (5 marks)

Question Three (15 marks)

a) Briefly explain the following terms as used in computing   (6 marks)
    i. CPU
    ii. ALU
    iii. RAM

b) State **FIVE** factors to be considered when choosing high level languages   (5 marks)

c) State the difference in functionality between interpreters and compilers   (4 marks)

Question Four (15 marks)

a) Briefly explain any **FOUR** program development stages   (8 marks)

b) What are comments in computer programming? What purpose do they serve?   (4 marks)

c) Outline any **THREE** features of program specifications   (3 marks)

Question Five (15 marks)

a) Using for loop write a program to print the sum of the first 100 natural numbers   (7 marks)

b) Draw a flowchart to illustrate the above program in (a)   (8 marks)