



TECHNICAL UNIVERISTRY OF MOMBASA

# Faculty of Engineering & Technology

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

DIPLOMA IN ELECTRICAL & ELECTRONIC ENGINEERING (DEEE 2)

**EIT 2103: COMPUTER PROGRAMMING**

END OF SEMESTER EXAMINATION

**SERIES: DECEMBER 2014**

**TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

### Question One (Compulsory)

- a) Define the following computer terms:  
    (i) Programming  
    (ii) Algorithm (2 marks)
- b) Explain the programming development life cycle stages (14 marks)
- c) State FOUR qualities of a good program (4 marks)

### Question Two

- a) Highlight any THREE ways of representing an algorithm (3 marks)
- b) State the function of any THREE symbols used in a flowchart. (3 marks)
- c) Write an algorithm that will help solve this problem: check whether the temperature value (in Celsius) given by the user into a furnace is the right value, and if ok a confirmation message should be displayed then conversion to Kelvins be performed. Otherwise, appropriate information is displayed and program terminate (required temperature value is 130°C and above) (10 marks)
- d) Differentiate between a compiler and an interpreter. (4 marks)

### Question Three

Briefly describe the programming languages stating an example where appropriate. (20 marks)

### Question Four

- a) Define the following terms used in databases:  
    (i) Database  
    (ii) Record (2 marks)
- b) Differentiate between a primary key and a foreign key (4 marks)
- c) Explain any FOUR advantages of using the database approach in handling data (8 marks)
- d) (i) List any FOUR advantages of using fiber optics (4 marks)  
    (ii) Write an SQL select statement to list all students who have paid 50% of total fees, from students' fees payment table. (2 marks)

### Question Five

- a) Define the following terminologies:  
    (i) Network  
    (ii) Protocol (2 marks)
- b) State any FOUR characteristics of a LAN (4 marks)
- c) Explain the following topologies with the aid of diagrams:  
    (i) Linear topology  
    (ii) Star topology  
    (iii) Ring topology (9 marks)

- d) Write an algorithm to calculate the sum of 10 numbers entered by the user. The program should terminate after the 10<sup>th</sup> input. **(5 marks)**