



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
(BTIT 13S)

EIT 4102: FUNDAMENTALS OF PROGRAMMING

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2013
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

Question One (Compulsory)

a) State TWO advantages of program documentation

(2 marks)

- b) Identify error that can occur in program and at what stages of the program do they occur (4 marks)
- c) Logical operator are integral part of programming using relevant example describe use of logical operators in programming (6 marks)
- d) Explain the difference between a variable definition and a variable declaration (2 marks)
- e) Given 5 jars of pills. Each pill weighs 10 gram, except for contaminated pills contain in one jar, where each pill weighs 9gm. Given a scale, how could you tell which jar had the contaminated pills in just one measurement (4 marks)
- f) Write logic that the value of x can be either a_0 or a_1 (2 marks)
- g) Draw a program flow chart to find a largest number in a given set of three numbers (4 marks)
- h) Write a program to find odd numbers from 30 to 50 (4 marks)
- i) In a loop, what is the difference between a break and continue statement (2 marks)

Question Two

- a) Using structure design a program to record students name, age faculty course scores and grades (14 marks)
- b) Explain any three disadvantages of machine programming language (6 marks)

Question Three

- a) Electricity board changes the following rates to domestic users to discourage large consumption of electricity energy.
For the first 200 units = 50 per unit
Beyond 300 cubic units = 60 units
If the total cost is more than 500.00 then an additional surcharge of 20% is added on the difference.
 - (i) Develop a program flowcharts for the above question (6 marks)
 - (ii) Develop a program that calculates the electricity bill (8 marks)
- b) List SIX factors to consider when developing user program interface (6 marks)

Question Four

- a) Differentiate between: (8 marks)
 - (i) Pass-by-value and pass-by-reference
 - (ii) Function call and function prototype
- b) Define the term “function” as used in programming and briefly discuss different types of functions (4 marks)
- c) Using a function and a case selection statements write a program to calculate the volume of a cone and sphere (8 marks)

Question Five

- a) Define a structure for a simple name/address record (4 marks)
- b) Develop a program using arrays to calculate average of ten students for three units. The program should be able to grade students according to average achieved (12 marks)

c) List and explain any FOUR qualities of a good program

(4 marks)