



KIMATHI UNIVERSITY COLLEGE OF TECHNOLOGY
University Examinations 2010/2011

**FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR
OF SCIENCE IN CIVIL ENGINEERING/ SECOND YEAR FIRST SEMESTER
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN ELECTRICAL
ENGINEERING**

SMA 2174: INTRODUCTION TO COMPUTER SCIENCE

DATE: 10th AUGUST 2010

TIME: 8.30 – 10.30 am

INSTRUCTIONS: Answer Question one and any other two questions

Question One

- a) Define the following concepts: (6 marks)
- (i) Computer networks
 - (ii) Analogue signal
 - (iii) Digital signal
- b) Describe THREE classes of computer networks in terms of geographical coverage. (6 marks)
- c) Brian, a technical director with Java Technologies proposed the introduction of computers in the firm but received much opposition from some employees. What do you think could have caused this opposition? Give five reasons. (10 marks)
- d) Explain five factors to consider when choosing an output device (8 marks)

Question Two

- a) Perform the following computations:

Convert the following binary string of digits into decimal numbers equivalent

- i) 1011011
- ii) 1011010111 (4 marks)

Convert the following binary numbers into their octal numbers equivalent

- iii) 011110
- iv) 11111011 (4 marks)

- b) Distinguish the terms:

- i. System software and application software
- ii. RAM and ROM

- iii. Magnetic Disk and Optical Disk
- iv. Online input devices and offline input devices (8 marks)
- c) Briefly explain FOUR computer risks and how they can be prevented. (4 marks)

Question Three

- a) By use of a diagram explain the program execution cycle (10 marks)
- b) Explain four functions of the operating system software (4 marks)
- c) Give three considerations before purchasing a computer for personal use (6 marks)

Question Four

- a) Describe ANY THREE roles that computers play in a networked environment. (6 marks)
- b) Define the following terms: (4 marks)
 - i) Program
 - ii) Software
 - iii) Software package
 - iv) Programmer
- c) Computer software may be sourced from a number of places. State any TWO sources of computer software. (2 marks)
- d) Describe TWO limitations and TWO advantages of obtaining software from the sources you have described in question (c) above. (4 marks)
- f) All computer systems have FOUR basic operations. State and briefly explain these operations. (4 marks)

Question Five

- a) Distinguish between input and output devices. (4 marks)
- b) Name THREE examples for each of the device types mentioned above. (3 marks)
- c) Explain the following terms: (6 marks)
 - i) Sequential access devices
 - ii) Random access devices
 - iii) Mass storage devices
- d) State TWO advantages and TWO disadvantages between sequential and random access devices. (2 marks)
- e) Give any FIVE reasons why computers are said to be better performers in information processing than humans. (5 marks)