



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya.

Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411

Fax: 064-30321

Website: www.mucst.ac.ke Email: info@mucst.ac.ke

University Examinations 2012/2013

FIRST YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

ICS 2103: INTRODUCTION TO SYSTEMS PROGRAMMING

DATE: APRIL 2013

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE – 30 MARKS

- a. Define the following terms with suitable examples
- a. Programming (2 Marks)
 - b. System (2 Marks)
 - c. Input devices. (2 Marks)
 - d. Output devices (2 Marks)
 - e. Storage devices. (2 Marks)
 - f. Processing devices (2 Marks)
 - g. Abstraction (2 Marks)
- b. What is the distinction between an operating system and an application system? (4 Marks)
- c. Identify and explain with examples the classification of user interfaces. (4 Marks)
- d. Operating systems have a history which can be categorized based on three main computing eras. Tabulate and explain these notions. (8 Marks)

Era	Hardware	Software	Operating System	Users
Mainframe				
Minicomputer				
Microcomputer				

QUESTION TWO – 20 MARKS

- a. Explain the usage of the following systems development environments:
 - i. Editor (2 Marks)
 - ii. Compiler (2 Marks)
 - iii. Interpreter (2 Marks)
 - iv. Assembler (2 Marks)
 - v. Debugger (2 Marks)
- b. Write a C application to print to the screen a sequence of integers, between 50 and 100 which are divisible by 7. (6 Marks)
- c. Distinguish between data structures v/s data types. (4 Marks)

QUESTION THREE – 20 MARKS

- a. Define the following system terms:
 - i. Thread (2 Marks)
 - ii. Process (2 Marks)
 - iii. File (2 Marks)
 - iv. Directory (2 Marks)
 - v. File system (2 Marks)
- b. What are the similarities between firmware and operating systems? (4 Marks)
- c. What are the differences between firmware and operating systems? (4 Marks)
- d. Explain the meaning of the term “chunk”. (2 Marks)

QUESTION FOUR – 20 MARKS

- a. Distinguish between NTFS and FAT32 file systems. (4 Marks)
- b. In the window API, what is the work of the following:
 - i. File object (2 Marks)
 - ii. File handles (2 Marks)
 - iii. File pointers (2 Marks)
- c. List and explain five main activities of an operating system in relation to file management. (5 Marks)
- d. A process goes through a series of five discrete process states. Identify and explain them. (5 Marks)

QUESTION FIVE – 20 MARKS

- a. Comment on the following operating system components:
 - i. Process management (2 Marks)
 - ii. Memory management (2 Marks)
 - iii. File management (2 Marks)
 - iv. I/O system management (2 Marks)
 - v. Secondary storage management. (2 Marks)
- b. What are the five major activities of an operating system in regard to process management? (5 Marks)
- c. Which are the five main major activities of an operating system in regard to file management? (5 Marks)