



TECHNICAL UNIVERISTRY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
(BTIT 11M & 13J)

EIT 4422: EMBEDDED SYSTEM

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. Attempt question **ONE (Compulsory)** and any other **TWO** 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 terms:

- (i) Embedded system
 - (ii) Micro-controller
 - (iii) Interrupt control
- marks)

(6

b) Explain any SIX application areas of embedded computer systems

(6 marks)

- c) Discuss any TWO embedded software development tools **(4 marks)**

Question Two

- a) Discuss various I/O devices used in embedded computing systems with their minimum data rate speed. **(10 marks)**
- b) List and explain the characteristics of embedded computing. **(6 marks)**
- c) Explain the basic of memory management units and how address translations are performed in embedded system. **(4 marks)**

Question Three

- a) What are the levels of abstraction in the embedded system design process. Explain with a suitable example **(6 marks)**
- b) Elucidate the pipelining and caching operations of the CPU in an embedded computing. **(8 marks)**
- c) Explain the scheduling techniques and its policies of an embedded system **(6 marks)**

Question Four

Write an embedded software program to implement the traffic light sequencing. **(20 marks)**

Question Five

- a) Explain the quality assurance required for an embedded system, **(8 marks)**
- b) With appropriate diagrams, discuss about the inter-process communication mechanisms **(6 marks)**
- c) Describe the various CPU metrics of an embedded metrics **(6 marks)**