TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

MATHS AND PHYSICS DEPARTMENT

UNIVERSITY EXAMINATION FOR:

BSC Applied Physics (Electronics and Instrumentation)

EEE 4407   EMBEDDED   SYSTEMS

END OF SEMESTER EXAMINATION

SERIES: SEPT. 2017

TIME: 2 HOURS

DATE:

Instructions to Candidates
You should have the following for this examination
-*Answer Booklet, examination pass and student ID*
This paper consists of **five** Questions; attempt any THREE Questions.
Do not write on the question paper.

Question ONE

(a)   (i)   Describe the following Real time design and specification methods and illustrate   with appropriate examples.

   (I)   Mathematical specification.
   (II)   State chart.
   (III)   Finite State Automata   **(12 marks)**

(b)   Use an appropriate flow diagram to show real time system development process using spiral model   (**8 marks)**

Question TWO

(a) Outline   8 applications of embedded systems.   (8 marks)

(b) Describe the four major categories of embedded systems   (8marks)

(c) Outline factors considered in imbedded system development process (4 marks)

Question THREE

(a)   Draw blue tooth protocol architecture and describe the functions of the link manager
        protocol.   **(12 marks)**

(b)   Draw the hardware and software architecture of the following embedded systems

        (i) Hand held computer

        (ii) IP phone

Question FOUR

(a)   Identify the six real time operating system requirements..   **(6 marks)**

(b)   with the aid of a diagram state the critical states in real time software implementation
        on embedded system hardware.   **(10 marks)**

(c)   Write C language code to check the status of bits in byte of word and out put the
        results

                                                                            (4 marks)

Question FIVE

(a)   State the software modules that may be include in an electronic voting java mobile.
        application   **(4 marks)**

(b)   Write Java code for any two of these modules   **(16 marks)**