University Examinations 2013/2014

THIRD YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN
MECHATRONICS ENGINEERING

EMT 0248: MICROPROCESSOR SYSTEMS II

DATE: APRIL 2014   **TIME: 1 ½ HOURS**

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

QUESTION ONE – (30 MARKS)

(a) Define the following terms
  (i)   Assemble
  (ii)   Loader
  (iii)   Linker   (3 Marks)
(b) Distinguish between maskable and non-maskable interrupts.   (4 Marks)
(c) State three schemes of transferring data between a microprocessor and I10 devices.
                                                                    (3 Marks)
(d) Explain the Direct Memory Access (DMA) method of data transfer. (4 Marks)
(e) Distinguish between serial and parallel data transfer modes.   (4 Marks)
(f) State four advantages of using sub routines.   (4 Marks)
(g) State the three techniques of fault finding in a microprocessor based system.
                                                                    (3 Marks)
(h) State five typical faults in a microprocessor based system.   (5 Marks)

QUESTION TWO – (15 MARKS)

(a) Outline the events that takes place when a microprocessor receiver an interrupt signal.
                                                                    (7 Marks)
(b) State three ways in which a microprocessor handles multiple interrupts.   (3 Marks)

(c) State three advantages and two disadvantages of daisy chain technique.   (2 Marks)

QUESTION THREE – (15 MARKS)

   (a) Explain any three functions performed by interfaces.   (6 Marks)
   (b) Explain the three modes of parallel data transfer.   (6 Marks)
   (c) Describe the 'cycle stealing' mode of Direct Memory Access (DMA).   (3 Marks)

QUESTION FOUR – (15 MARKS)

   (a) Draw a flowchart of the troubleshooting procedure of a microprocessor system.
                                                        (10 Marks)
   (b) Describe how a logic probe is used in fault finding.   (5 Marks)