

EGERTON



UNIVERSITY

UNIVERSITY EXAMINATIONS

NJORO CAMPUS
2011/2012 ACADEMIC YEAR

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF ARTS IN
COMMUNICATION AND MEDIA

COMP 202: ASSEMBLY LANGUAGE PROGRAMMING

STREAM: BSc.

TIME: 2HOURS

DAY: THURSDAY, 12.00 NOON – 2.00 P.M.

DATE: 03/05/2012

INSTRUCTIONS

- i) Question one is compulsory.
- ii) Answer any other two questions.

QUESTION ONE (30 MKS)

- a) Write a program to subtract two 16-bit numbers (4mks)
- b) With examples discuss the maskable and unmaskable interrupts (4mks)
- c) Write a program to find the sum of a series of numbers. (6mks)
- d) Differentiate between synchronous and asynchronous data transfer mode (4mks)
- e) Write a program to divide two 8-bit numbers (5mks)
- a) With the aid of the attached 8085 instructions set, show the operation codes for following 8085 source code starting at memory location 8400H.

```

      .
      .
8400  MVI  A, 80H      ;
      XRA              ;
      JNZ  8400H      ;
      DCR A           ;
      MVI  B, 88H      ;
      ADD  B           ;
      JZ   8400H      ;
      .
      .

```

Determine;

- i) The contents of the accumulator
- ii) The status of the flag register
- iii) The address of the next instruction after the JZ instruction (7mks)

QUESTION TWO (20 MKS)

- a) Discuss the various addressing modes in 8085 microprocessor (6mks)
- b) What is meant by computer bus? Discuss the various computer buses in 8085 microprocessor (4mks)
- c) Write a program to subtract two decimal numbers (5mks)
- d) Write an assembly language program to add two 16-bit numbers with a carry (5mks)

QUESTION THREE (20 MKS)

- a) Write a program to perform $y=8x^3 +9$ (10mks)
- b) Write a program to find the largest of n numbers (5mks)
- c) Add (11011111) to (1111 1111) and show the status of the flag register. (5mks)

QUESTION FOUR (20 MKS)

- a) With the aid of a diagram discuss the following 8085 microprocessor parts: (2mks)
 - i. Control unit (2mks)
 - ii. Arithmetic and logic unit (2mks)
 - iv. Interrupt control (2mks)
 - vi. registers (3mks)
- b) Write a program to multiply two 8-bit numbers (5mks)
- c) Write a program that XNOR together two numbers, place the result into memory location 8300H. (4mks)

QUESTION FIVE (20 MKS)

- a) Write a program to arrange numbers in descending order (8mks)
- b) Discuss the following data transfer schemes (12mks)
 - i. interrupt driven I/O
 - ii. direct memory access
 - iii. programmed input output
 - iv. polled input output
