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.must.ac.ke Email: info@must.ac.ke

University Examinations 2013/2014

YEAR TWO, SEMESTER ONE EXAMINATION FOR DIPLOMA IN ELECTRICAL ENGINEERING

EEE 0227: COMPUTER PRINCIPLES

DATE: APRIL 2014 **TIME: 1½ HOURS**

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

QUESTION ONE - (30 MARKS)

1. Discuss the following terms:
   i. Seek time (2 marks)
   ii. Rotational delay (2 marks)
   iii. Data transfer rate (2 marks)
2. Perform the following base conversions.
   a) $121_{10} = X_2$ (2 marks)
   b) 12210 = X# (2 marks)
   c) $691_{10} - X_8$ (2 marks)
3. Perform the following computations
   a) $2567_8 + 3476_8$ (2 marks)
   b) $1110011_2 + 110000_2$ (2 marks)
4. State five factors to consider when choosing a programming language. (5 marks)
5. Discuss the term secondary storage and give three reasons why computers need secondary storage. (4 marks)
6. Give two reasons why poched cards have become unpopular in computer storage today? (2 marks)
7. Distinguish between monolithic, modular and structured programming as used in program development. (3 marks)

QUESTION TWO – (15 MARKS)

1. Convert the binary number 1100101101 into;
    a) Decimal number (2 marks)
    b) Octal number (2 marks)
    c) Hexadecimal number (2 marks)

2. Distinguish between the following terms:
    a) Queries and stacks (2 marks)
    b) Macros and arrays (2 marks)
3. (i) State and explain any three address formats. (3 marks)
    (ii) Identify four factors that one would consider when choosing a programming language. (4 marks)

QUESTION THREE – (15 MARKS)

1. Explain the following terms:
    i. ASCII Coding (2 marks)
    ii. EBCDIC Coding (2 marks)
    iii. BCD coding (2 marks)

2. Give four differences between low level programming and high level programming. (4 marks)
3. Identify three advantages of using modular programming in system development. (3 marks)
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4. Explain the principal characteristics of the parity bit. (2 marks)

QUESTION FOUR – (15 MARKS)

1. Discuss the following notations
    a) Decimal notation (2 marks)
    b) Octal notation (2 marks)
    c) Binary notation (2 marks)
2. Explain the following terms:
    a) Byte (2 marks)
    b) Zone bit (2 marks)
    c) Parity check (2 marks)
3. Convert 0.75_{10} to octal fraction. (3 marks)

QUESTION FIVE (15 MARKS)

1. Convert the following octal fractions to their decimal equivalents.
   i. 054_8 (3 marks)
   ii. 064_8 (3 marks)
2. Give four differences between magnetic tapes and magnetic disks. (4 marks)
3. Explain the three parts of floating point representation of numbers. Give examples in each case. (5 marks)