# University of Eswatini

# Department of Computer Science

### Examination(Main)

### 2018/2019

### FIRST SEMESTER

Title of Paper: INTRODUCTION TO COMPUTER SCIENCE

Course Code: CSC111

Time Allowed: Three (3) Hours

**Instructions:** Answer Question one and any other three **Questions**.

Don't write anything on the Examination Question paper.

You are not allowed **to open this paper until you have been told to do so by the invigilator.**

## QUESTION ONE

a) List and explain the five distinct computing disciplines identified by ACM    5marks

b) To answer question 1b(i), you are expected to provide your group number and the HFOSS project you work on

i)     What do you think will be the impact of the HFOSS project you reviewed on Eswatini as a nation?                                                5marks

ii) How can the HFOSS project you reviewed be sustained?                          5marks

iii) List and explain the future potentials of the HFOSS project in Eswatini      10marks


## QUESTION TWO

a) List and explain five benefits of HFOSS to students              5marks

b) Write an algorithm for calculating check digit and apply the algorithm to calculate the check digit on ISBN 978-1-337-10208                                          10marks

c) Differentiate between the following below
   i.      Serial and parallel transmission      2marks
   ii.     Simplex and Half-Duplex      2marks
   iii.    Intranet and internet          2marks
   iv.     ASCII and EBCDIC                      2marks
   v.      Computer users and Computer Professionals   2marks

## QUESTION THREE

a) Write R program to generate the Fibonacci numbers below using an array and a for loop 1,1,2,3,5,8,13,21,34,55,89                                                    10marks

b) List five licenses for FOSS                                                          5marks

c) Convert 101111 in binary to hexadecimal using binary coded hexa      4marks

d) Write short note on the following
   i.      LAN      2marks
   ii.     WAN      2marks
   iii.    MAN      2marks

## QUESTION FOUR

a) List and explain five functions of the operating system                          5marks

b) Write R program to generate odd numbers and sum the output using if and a loop

   12marks

c) Differentiate between the following
   i.      Modulator and demodulator          2marks
   ii.     CD-R and CD-RW                          2marks
   iii.    RAM and ROM                            2marks
   iv.     Arithmetic operations and logical operations   2marks

## QUESTION FIVE

Table 1

| A | B | C | D | E | X=ABC/D$^4$E | Y=A%%B+C%/%D |
|----|---|---|---|---|--------------|--------------|
| 4  | 2 | 1 | 3 | 2 | | |
| 8  | 3 | 4 | 2 | 1 | | |
| 12 | 4 | 2 | 1 | 3 | | |
| 15 | 5 | 3 | 5 | 4 | | |

   a) Write R program to complete table 1 above                12marks
   b) Write short notes on the seven layers of the OSI model and draw a diagram to show the ordering of the layers                                    7marks
   c) List and explain three common computer ethical issues        6marks

## QUESTION SIX

   a) What impact will digital divide have on individuals, organizations and communities in Eswatini                                                 6marks
   b) A list of a sequence of a number is given 2,4,8,NA, 7,9,10,11, NA,5,7. Write R program to find the following
      i. ) mean
      ii.) median
      iii.) maximum
      iv.) minimum

                                                                5marks
   c) Write short note on any four R objects of your choice        4marks
   d) Write an R function called Fibonacci to generate the first twenty numbers Fibonacci numbers.                                              10marks