University of Eswatini

Department of Computer Science

Examination(SUPPLEMENTARY)

2020/2021

FIRST SEMESTER

Title of Paper: INTRODUCTION TO COMPUTER SCIENCE

Course Code: CSC111

Time Allowed: Three (3) Hours

Instructions: Answer any **Four** Questions.

Don't write anything on the Examination Question paper.

QUESTION ONE

a) List and explain five types of data that a computer can process   5MARKS

b) Write an algorithm to solve a system of linear equations involving 2 unknowns from the mathematical equation below

$ax + by = c$

$dx + ey = f$

    9MARKS

c) Convert 101101.10 in binary to decimal   4MARKS

d) Write a python program to generate the multiplication table below using a loop

    10 x 1 = 10

    10 x 2 = 20

    10 x 3 = 30

         :

         :

         :

    10 x 12 = 120   7MARKS

QUESTION TWO

a) Write a python program to solve a quadratic equation using if statement

    7MARKS

b) Write a short note on the use of comments in python   3MARKS

c) List and briefly explain the phases involved in SDLC   10MARKS

d) Confirm if the check digit of the ISBN 978-1-337-56191-4 is correct or not

    5MARKS

QUESTION THREE

a) List and explain five challenges of FOSS   5MARKS

b) What qualifies a computer to be referred to as a Data Processor?   5MARKS

c) Write a python program to solve the simultaneous equations below

$3x_1 + 5x_2 = 15$

$8x_1 - 7x_2 = 20$

    10MARKS

d) Differentiate between the following pairs:

    i.   Free Software and Open Source Software   3MARKS

    ii.   Freeware and Shareware   2MARKS

QUESTION FOUR

a) Differentiate between a computer professional and a computer user with the support of two examples for each   6MARKS

b) Explain the role of the first 5 layers of OSI model in computer network

      10MARKS

c) Write short note on the three commonly used binary coding scheme   3MARKS

d) Write a python program to add the two matrices below

$$A = \begin{pmatrix} 4 & 2 & 5 \\ 10 & 5 & 7 \end{pmatrix}$$

$$B = \begin{pmatrix} 9 & 13 & 15 \\ 14 & 5 & 14 \end{pmatrix}$$

      6MARKS

QUESTION FIVE

a) List and explain five functions of an OS   5MARKS

b) Convert DB7 in hexadecimal to decimal   5MARKS

c) Write a python program to calculate the sum and average of the first n natural numbers using a while loop, and without if statement
10MARKS

d) Write short notes on five factors affecting communication among devices   5MARKS

QUESTION SIX

a) Explain the following
i.   LAN
ii.   MAN
iii.   WAN   6MARKS

b) Differentiate between the following pairs:
   i.   Half and full duplex
   ii.   Compiler and interpreter
   iii.   Serial and parallel transmission
   iv.   Download and upload
   v.   Master and transaction file   10MARKS

c) List five advantages of email over post-mail   5MARKS

d) List and explain four reasons why system can fail   4MARKS