

# **University of Eswatini**

## **Department of Computer Science**

**Examination(SUPPLEMENTARY)**

**2019/2020**

**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) Can a small computer and a large one perform the same tasks? Discuss  
10MARKS
- b) Differentiate between third and fourth industrial revolution 4MARKS
- c) Convert 1101.10 in binary to decimal 4MARKS
- d) Write a python program to generate multiplication table below using a loop
- $$\begin{array}{l} 8 \times 1 = 8 \\ 8 \times 2 = 16 \\ 8 \times 3 = 24 \\ \vdots \\ \vdots \\ \vdots \\ 8 \times 12 = 96 \end{array}$$
- 7MARKS

### QUESTION TWO

- a) Write a python program to solve quadratic equation using if statement  
7MARKS
- b) Write short note on the use of comment 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 equations below

$$4x_1 + 6x_2 = 10$$

$$2x_1 - 8x_2 = 24$$

10MARKS

- d) Differentiate between the following
- Free Software and Open Source Software 3MARKS
  - 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) Is the following a legitimate Turing machine? Why or why not?
- (1,1,0,2,R)
  - (1,0,0,3,R)
  - (2,0,0,4,L)
  - (3,0,1,4,L)
  - (4,1,1,5,R)
- 10MARKS
- c) Write short note on the three commonly used binary coding schemes 3MARKS

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

$$A = \begin{pmatrix} 3 & 1 & 5 \\ 10 & 5 & 7 \end{pmatrix}$$

$$B = \begin{pmatrix} 9 & 11 & 15 \\ 14 & 5 & 17 \end{pmatrix}$$

6MARKS

#### QUESTION FIVE

- a) List and explain five functions of OS      5MARKS
- b) Convert BA34 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 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
  - 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 a system can fail      4MARKS