University of Eswatini

Department of Computer Science

Examination (Main)

2020/2021

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.

QUESTION ONE

a) "Technology being a two edged sword and can be used for building weapons of destruction or advancing human life". List and explain five (5) factors influencing STEM students' academic performance in first year computer programming courses during COVID-19 pandemic.

15marks

b) Write an algorithm that is given your electric meter readings (in kilowatt-hours) at the beginning and end of each month of the year. The algorithm determines your annual cost of electricity on the basis of a charge of 6cents per kilowatt-hour for the first 1000kilowatt-hours of each month and 8cents per kilowatt-hour beyond 1000. After printing out your total annual charge, the algorithm should also determines whether you used less than 500kilowatt-hours for the entire year and, if so, prints out a message thanking you for conserving electricity. 10marks

QUESTIONTWO

a) List and explain five elements of a system 5MARKS

b) Write out the full meaning of the following

i. POST
ii. BASIC
iii. BIOS
iv. HTTP
v. URL
vi. HDMI
vii. VGA
viii. MODEM
ix. INTRANET
x. WORM 10MARKS

c) Differentiate between SRAM and DRAM 3MARKS

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

5 x 1 = 5	6 x 1 = 6	7 x 1 = 7
5 x 2=10	6 x 2 = 12	7 x 2 = 14
:	:	:
:	:	:
:	:	:
5 x 12 = 60	6 x 12 = 72	7 x 12 = 84

7MARKS

QUESTION THREE

a) Convert the hexadecimal number B5E9 to Binary directly 5MARKS

b) List and explain five responsibilities of a DBA 5MARKS

c) Write a python program to draw a rectangle and circle with length of 55cm and radius of 150cm 10MARKS

d) Write short notes on five common related disciplines of computing according to the Association of Computing Machinery (ACM) 5MARKS

QUESTION FOUR

a) What in your views are the strengths and weaknesses of open source in view of the diversity of institutional contexts? 10MARKS
b) Write a python program to calculate the sum of odd numbers between 100 and 1000 using a for loop with if statement 10MARKS
c) List and explain any five application software with the support of one example for each 5MARKS

QUESTION FIVE

a) A computer has 512MB of memory. Each word is 32bytes. How many bits are needed to address each single word in memory? 4MARKS
b) Convert the octal number 735 to binary using binary coded octa 4MARKS
c) List and explain five qualities of a good Computer Scientist 5MARKS
d) Write a python code to sum the numbers below using a list and a loop

21, 17, 15, 12, 11, 24, 63 7MARKS

e) List and explain five characteristics of a flowchart 5MARKS

QUESTION SIX

a) List and explain five differences of FOSS and traditional software with the support of two examples for each 5MARKS
b) Confirm if the check digit of the ISBN 978-1-337-56191-7 is correct or not 5MARKS
c) Write a python code to solve the system of linear equations below using an array and numpy

$8x + 3y - 2z = 9$
$-4x + 7y + 5z = 15$
$3x + 4y - 12z = 35$

8MARKS