MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SPECIAL/SUPPLIMENTARY EXAMINATION FOR BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

EEE 202: COMPUTER PROGRAMMING II

DATE: 22/3/2021 **TIME: 8.30-10.30 AM**

INSTRUCTION: Answer Question ONE and any other TWO Question

QUESTION ONE (30 MARKS)

a) Differentiate between the following terms as used in C++ programming. (8 marks)

i. variable and identifier;

ii. global and local variable;

iii. for…loop and do…while loop;

iv. variable declaration and variable initialization.

b) List and explain any **five** types of constants used in C++ programming. (5 marks)

c) Explain the use of the following operators. (4 marks)

i.%

ii.>=

iii.!

iv.- -

d) Write a C++ program to demonstrate how operators in (C) above can be used (4 marks)

e) Explain any five data types used in C++ programming (2 marks)

f) i. Differentiate between program structure and control structure (2 marks)

ii. Explain the relationship between the structure of a computer program and control structures. (3 marks)

g) Rewrite the following mathematical statements in the equivalent C++ statements (2 marks)

i. $y = 3^{\frac{x}{2}}$

ii. $Z = 3bc + 4$

QUESTION TWO (20 MARKS)

a) State the meaning of the following C++ statements (4 marks)

i. cout<<"The result is"<<result;

ii. cin>>x>>y>>z;

b) Differentiate between the following giving an example in each

i. Declaration of variables

ii. Initialization of variables

iii. Escape sequences (6 marks)

c) Write a C++ program using the switch statement to display the following (10 marks)

i. Health Club Membership Menu

ii. Standard Adult Membership

iii. Child Membership

iv. Senior Citizen Membership

v. Quit the program

Enter your choice:

For how many months?

The total charges are $

Use the following to get the total charges:

Membership rates : Adult = 40.0

Senior = 30.0

Child = 20.0

Charges = months * member

QUESTION THREE (20 MARKS)

a) Name and explain **two** translator programs (4 marks)

b) Define the following giving an example of how each is can be expressed in a C++ program:

i. Function prototype

ii. Function header

iii. Function call (6 marks)

c) A program in C++ language is required that determines whether a person qualifies for a credit card. To qualify, the person must have worked on his or her current job for at least two years and make at least $17,000 per year.

i. Write the definitions of the functions qualify and noQualify.

ii. The function qualify should explain that the applicant qualifies for the card and the annual interest rate is 12%.

iii. The function noQualify should explain that the applicant does not qualify for the card and give a general explanation as to why. (10 marks)

QUESTION FOUR (20 MARKS)

a) Explain using examples the two ways an array can be declared in C++ programming language. (4 marks)

b) Explain three types of errors a programmer encounters during debugging (6 marks)

c) Write a C++ program that asks for the number of hours worked by six employees. It displays the values in an array. (10 marks)

QUESTION FIVE (20 MARKS)

a) An organization in Nairobi is seeking advice on how to deal with the poor running of their computer systems and the high cost they have been incurring in fixing the problems. Having an IT and programming background you are required to advice them (6 marks)

b) Explain four types of system change over suggesting under what circumstances you will recommend on them (4 marks)

c) Write a C++ program that captures and stores the values 'X' and 76.1 in separate memory cells. Your program should get the values as data items and display them again for the user when done (10 marks)