WOMEN'S UNIVERSITY IN AFRICA

Addressing gender disparity and fostering equity in University Education

FACULTY OF MANAGEMENT AND ENTREPRENEURIAL SCIENCES

BSc HONOURS DEGREE IN INFORMATION SYSTEMS

BSc HONOURS DEGREE IN COMPUTER SCIENCE

MAIN PAPER

IS123:   **PROGRAMMING USING C**

HCS111:   **INTRODUCTION TO COMPUTER PROGRAMMING**

INTAKE 26:   **FIRST YEAR SECOND SEMESTER**

INTAKE 3:   **FIRST YEAR FIRST SEMESTER**

TIME: **2 HOURS**

INSTRUCTIONS TO CANDIDATES

Answer any **four** questions.

Question 1

a) For each of the identifiers below state whether it is valid or invalid in c programming and justify your assumption.

      i.   1999_space;   [2]

      ii.   _apple;   [2]

      iii. iNtEL;   [2]

      iv. one_2; and   [2]

      v.   for.   [2]

b) Write a c program that accepts student's marks in 3 different subjects. The program must then calculate average of 3 subjects and display the grade as per following rules in a table below: [11]

Average	Grade
90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

c) Explain the difference between static and dynamic memory allocation [4]

Question 2

a) Given the following declarations determine the output of C programming statements below:

    int i=0, j=1, k=2

      i.   i++-++j+k++   [3]

      ii.   ++i+j+++++k   [3]

      iii. i--+j++---k*2   [3]

      iv. j++*--k-++I   [3]

      v.   i+=--j+k++   [3]

b) List ten important features of a C program [10]

Question 3

a) Write notes on the sizeof() operator. [6]

b) Write a C program that computes the size of int, float, double and char variables. [10]

c) Explain what the following string manipulation commands achieve.

    i.   strcat (str1, str2); [3]

    ii.   strcmp (str1, str2); and [3]

    iii.   strcpy (str1, str2); [3]

Question 4

a) With an aid of an example, explain the syntax of do-while statement. [7]

b) Write a C program to find the factorial of a number using while loop, where the number n is entered by the user. (Hint: factorial of n = 1*2*3*....*n). [10]

c) List the most common uses of pointers in programming. [8]

Question 5

a) Write equivalent c statements to achieve the following situations in arrays.

    i.   Declare an array marks of 15 components of type int. [2]

    ii.   Output the value of the 10th component of the marks array. [2]

    iii.   Set the value of the 5th component of the marks array to 35. [2]

    iv.   Set the value of the 9th component of the marks array to the sum of the 6th and 13th components of the marks array. [2]

    v.   Output marks so that five components appear on each line. [2]

b) Write a program to enter the numbers till the user wants and at the end it should display the count of positive, negative and zeros entered. [15]

Question 6

a) Write a program to print numbers from 1 to 10. [5]

b) Write a program that asks the user for a positive integer value. The program should calculate the sum of all the integers from 1 up to the number entered. For example, if the user enters 20, the loop will find the sum of 1, 2, 3, 4, ... 20. [10]

c) Determine the output of typing the following c statements on the console screen:

Given that int i=0,j=1,k=-1 and float x=1.5, y=2.5;

i.	i&&j	[2]
ii.	i<j&&x<y	[2]
iii.	j+k || !i	[2]
iv.	i*j<y*k || x	[2]
v.	x+j|| i*y	[2]

END