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University Examinations 2012/2013

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND BACHELOR OF SCIENCE IN MATHEMATICS AND COMPUTER SCIENCE
AND
FIRST YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY
AND
SECOND YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN CROP PROTECTION

ICS 2213/ICS 2102: INTRODUCTION TO COMPUTER PROGRAMMING

DATE: DECEMBER 2012 **TIME: 2 HOURS**

INSTRUCTIONS: *Answer question **one** and any other **two** questions*

QUESTION ONE – 30 MARKS

a. List two examples of fourth generation programming languages. (2 Marks)
b. State two limitations of high level languages. (2 Marks)
c. Differentiate between the following terms:
   i. Pass by value and pass by reference. (2 Marks)
   ii. Compiler and interpreter (2 Marks)
d. The following is a C program segment. Use it to answer the question that follows:

```
main ()
{
Int a,b,c,y;
b=++a;
c=b++;
y=b+c;
```

Given that the value of a is 6 evaluate the value of y. (4 Marks)

e. Write the syntax for declaring a two dimensional array and give an example. (3 Marks)

f. Write down the structure of a C program. (6 Marks)

g. The table below shows five choices and their corresponding remarks. Use it to answer the questions that follows:

Choice	
1	Pilau plain
2	Githeri beef
3	Chapati chicken
4	Chips liver
5	Rice bean
All other cases	No selection made

Write a C program that can be able to prompt a user to enter a choice. The program then outputs a remark based on the choice entered. Use the switch statement. (5 Marks)

h. A student intended to create a program a capture the following details. Student's *national ID, name, feespayable* and the *number of meals* per day the student has paid for. For each of the items state a corresponding data type. (4 Marks)

QUESTION TWO – 20 MARKS

a. State two structured programming languages other than C. (2 Marks)

b. State four parts for loop. (4 Marks)

c. Differentiate between the following terms:

i. Local variable and global variable. (2 Marks)

ii. Continue and break. (2 Marks)

d. Explain the functions of the following statements in C: (4 Marks)

i. Strlen ()

ii. Scope resolution operator

e. Write the output of the following sections of code. (3 Marks)

```
Int x[5]={5,2,7,5,8}
C,count=0;
For(c=0; c<5; c++)
If (x[c]>5)
Count++;
Printf ("%d",count);
```

f. Assuming a struct named a with one member variable named t (of float type) write code to:

i. Define the struct. (2 Marks)

ii. Declare an instance named **b** of type a. (1 Mark)

QUESTION THREE – 20 MARKS

a. Draw a program flow chart that finds the area of a circle. The program should only accept the value of radius being between 7 to 70. (4 Marks)
b. Define the following terms: (3 Marks)
   i. Identifier
   ii. Data type
   iii. Operator precedence
c. Write the syntax for declaring a struct. (3 Marks)
d. Using appropriate examples explain the following errors. (6 Marks)
   i. Syntax error
   ii. Run time error
   iii. Logical error
e. What is the output of the following section? (4 Marks)

```
Int a, b;
For (a=0; a<3; a++)
For (b=0; b<=3;b++)
Printf("%d",b):
```

QUESTION FOUR – 20 MARKS

a. State four good coding techniques. (4 Marks)
b. Write the syntax for declaring a function definition. (4 Marks)
c. Explain the six stages of program development. (6 Marks)
d. What is the output of the following section of code? (6 Marks)

```
Int x, y;
Y=5;
Printf("x=%d, y=%d",x,y);

Int x, y;
Y=5;
X=++y;
Printf("x=%d, y=%d",x,y);
```

QUESTION FIVE – 20 MARKS

a. State three advantages and three disadvantages of low level languages. (6 Marks)
b. Differentiate between testing and debugging. (2 Marks)
c. Draw and explain six symbols in flow chart design. (6 Marks)
d. Write a C program using a one dimensional array that reads in five values and displays them. (6 Marks)