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University Examinations 2013/2014

FIRST YEAR, FIRST SEMESTER, EXAMINATION FOR THE DEGREE OF BACHELOR
OF BUSINESS IN INFORMATION TECHNOLOGY

ICS 2102: INTRODUCTION TO COMPUTER PROGRAMMING

DATE: APRIL 2014

TIME: 2 HOURS

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

QUESTION ONE (30 MARKS)

- a) State three disadvantages of using High-level languages. (3 marks)
- b) Define the term recursion and explain two conditions necessary for a problem to be solved using a recursion. (3 marks)
- c) Explain the meaning of the following escape sequence. (2 marks)
 - i. `/n`
 - ii. `/a`
- d) Suppose a,b,c are simple Boolean expressions and all currently have the value TRUE. How should the following expression be evaluated; a OR b AND not c (4 marks)
- e) Define type casting and differentiate between implicit type forecasting and explicit type casting. (3 marks)
- f) Write the correct syntax for declaring a two dimensional array. (3 marks)

- g) Draw a flowchart for a program that would prompt the user to enter the Length and Width of a rectangle, calculate the Area and Perimeter, then display the result. (5 marks)

Figure 1 shows the playground of a certain institution. Use it to answer the question that follows;

- h) Using a function for each of the parts labeled X, Y, Z. Write a C program to calculate the total area covered by the playground. Take pie to be 3.14. (7 marks)

QUESTION TWO (20 MARKS)

- a) State the three parts of a function which a caller need to know. (3 marks)

- b) A student encountered the following statement in a piece of code
`Scanf(“%.5f”, &n);`
Explain the meaning and implication of the statement in the code. (3 marks)

- c) Scrutinize at the following piece of code

```
#include<stdio.h>
Double areatriangle(double b, double h)
Double main ()
{
Double a, b, h;
Printf (“enter base and height\n”);
Scanf(“%lf%lf”,&b,&h);
A=areatriangle(b, h);
Printf(“%2lf\n”,a)
Return 0;
Double arearectangle(double x , double y)
{
Return (0.5* x *y);
}
```

- d) Identify the following parts in the above program (3 marks)
i. Function definition

- ii. Function prototype
 - iii. Function call
- e) Differentiate between formal parameters and actual parameters and identify them in the program above. (4 marks)
- f) Differentiate between global and local variables and identify them in the program above. (4 marks)
- g) Write a program that prompt the user to enter his name, the program should then display the name. (4 marks)

QUESTION THREE (20 MARKS)

- a) State two limitation of documentation in a system. (2 marks)
- b) Differentiate between implicit and explicit type casting. (2 marks)
- c) Write the syntax for declaring a simple variable and give an example for it. (2 marks)
- d) Using appropriate examples differentiate between unary and binary operator. (4 marks)

Scrutinize the following code and state the output generated (5 marks)

```
#include<stdio.h>
Main ()
{
int prod = 1;
int sum = 0;
int sign = -1;
while(prod<=32)
{
Printf(“%d\n”prod*sign);
Sign = -sign;
Prod = prod*2;
}
}
```

- e) Write a C program using a one dimensional array that reads in five values and displays them. (5 marks)

QUESTION FOUR (20 MARKS)

- a) State three items that characterize an array declaration. (3 marks)
- b) Differentiate between testing and debugging. (4 marks)
- c) Write the file extension for the following C files: (3 marks)
- i. Source code
 - ii. Compiled source code
 - iii. Linked C program
- d) Write the syntax for declaring a two dimensional array and give an example. (5 marks)
- e) Write a C program that initializes the values a,b,c to 12,15,21 respectively. The program should be able to output the values. (5 marks)

QUESTION FIVE (20 MARKS)

- a) State four parts of a for loop. (4 marks)
- b) Differentiate between the following terms. (4 marks)
- i. Local variable and global variable
 - ii. Continue and break

- c) Scrutinize the following piece of code

```
# include<stdio.h>
Main ()
{
int p,r;
for(p=1;p<=5;p++)
{
For(r=1;r<=p+4;r++)
Printf("d");
Printf("\n");
}
}
```

Required:

- i. Write the output (4 marks)
- ii. Write the trace table for the execution. (3 marks)

- d) Using switch structure, write a C program to accept the choice representing the meal and display the appropriate meaning for the choice entered. The program should be able to prompt a user to enter a choice then outputs a remark based on the choice entered.(5 marks)

Choice	Meal
1	Pilau plain
2	Githeri beef
3	Chapati chicken
4	Chips liver
5	Rice beans
All other cases	Un appropriate selection