UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2013/2014

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BIT10303
PROGRAMME	:	1 BIT
EXAMINATION DATE	:	DECEMBER 2013/JANUARY 2014
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS.

SECTION A

Q1   State whether each of the following C statement is **VALID** or **INVALID**.

     (a)   `printf("%d",8);`

          (1 mark)

     (b)   `int _matricNo;`

          (1 mark)

     (c)   `printf("%c","programming");`

          (1 mark)

     (d)   `string word = "FSKTM";`

          (1 mark)

     (e)   `char a2013;`

          (1 mark)

     (f)   `printf("%c",'A');`

          (1 mark)

     (g)   `#include <studio.h>`

          (1 mark)

     (h)   `case "word" :`

          (1 mark)

     (i)   `scanf("%d",%a);`

          (1 mark)

     (j)   `for (int r=1;r<=10;r++)`

          (1 mark)

Q2   State whether each of the following statement is **TRUE** or **FALSE**.

     (a)   Function `printf` always begin printing at the beginning of a new line.

          (1 mark)

     (b)   Comments cause the computer to display the text after `//` on the screen when the program is executed.

          (1 mark)

     (c)   The placeholder for a string data type is `%c`.

          (1 mark)

     (d)   All variables must be defined before they are used.

          (1 mark)

(e) `(a > 0 && a < 10)` is true when both relational expressions are true.

(1 mark)

(f) Variables `uthm` and `UTHM` are the same.

(1 mark)

(g) To refer to a particular location or element within an array, the name of the array and the index of the particular element must be specified.

(1 mark)

(h) The modulus operator `%` can be used only with integer data type.

(1 mark)

(i) The following `for` statement is valid.

```
int number = 5;
for(int m=100;m>number;m--)
{
        printf("This is invalid");

}
```

(1 mark)

(j) A function named `void money()` will return a float value.

(1 mark)

SECTION B

Q3 State the output for each of the following statement.

(a)
```
int x;
int y = 3;
int z = 0;

x = y;
y *= x;
z = x + y + x * y;

printf("%d %d %d",x,y,z);
```

(2 marks)

(b)
```
for (int a=1; a<=3; a++)
  for (int b=1; b<=3; b++)
  {
      printf("%d %d\n",a,b+1);
  }
```

(4 marks)

(c)
```
int number[3];
int xyz = 2;
int abc = 0;

do
{
        number[abc] = abc * 2;
        printf("%d\n", number[abc]);
        abc++;

} while (abc <= xyz);
```

(4 marks)

Q4   Questions Q4(a) - Q4(e) are based on the following declarations.

```
float a = 2.5, b = 0.0012, c = 3000.0;
char d1 = 'A' , d2 = 'B' , d3 = 'C';
```

Apply output formatting in `printf` statement to produce the following (assume * represents a space).

(a)   `2.500000 0.001200 3000.000000`

(2 marks)

(b)   `***2.500 ***0.001 3000.000`

(2 marks)

(c)   `d1=A d2=B d3=C`

(2 marks)

(d)   `A** 2.50 **B 0.001 ***C 300.0`

(2 marks)

(e)   `2.5000** 0.001*** 3000.0** C B A`

(2 marks)

Q5   Rewrite the following `while` statement into `for` equivalent statement.

```
int x=0;
int y=0;

while(x<7)
{
        while(y<=x)
        {
                printf("%d %d",x,y);
                y++;
        }
        x++;
}
```

(6 marks)

Q6   Write appropriate function prototypes for each of the following:

(a)   Function `unique` that takes two integer arguments, `a` and `n`, and returns an integer result.

(2 marks)

(b)   Function `compare` that takes three floating points, `a, b, n` and does not return a value.

(2 marks)

(c)   Function `binary` that takes two double precision floating point arguments `x` and `y`, and an integer argument `z`, and returns double-precision floating-point results.

(2 marks)

(d)   Function `swap` that does not receive any arguments and does not return any value.

(2 marks)

(e)   Function `product` that receives two floating-point arguments `g` and `h`, two integer arguments `m` and `n`, and does not return any value.

(2 marks)

Q7   Write a C statement to accomplish the following:

(a)   Define `matrix` to be an integer array of 2 rows and 3 columns.

(1 mark)

(b)   Use a `for` statement to initialize each element of `matrix` from user input.

(1 mark)

(c)   Use a `for` statement to multiply each element of `matrix` by two.

(2 marks)

(d)   Use a `for` statement to print each element of `matrix`.

(2 marks)

Q8 Given the following pointer declarations, determine the output of the following statements. Assume that each of the operation is contiguous.

```
int p = 5, q = 10;
int *ptr;
int **pptr;
```

(a)
```
ptr = &p;
pptr = &q;
printf("%p %p",p,q);
```

(2 marks)

(b)
```
*ptr = 3;
**pptr = 7;
printf("%d %d",p,q);
```

(2 marks)

(c)
```
ptr = &q;
**pptr = 9;
printf("%d %d",p,q);
```

(2 marks)

(d)
```
*pptr = &p;
*ptr = -2;
printf("%d %d",p,q);
```

(2 marks)

SECTION C

Q9 A charity fund committee members has agreed to determine amount of donations based on staff basic salary as shown in **Table 1**. Write a program that will allow user to enter name and basic salary for 30 staff. Then, the program will display the names and their amount of donations.

Table 1: Donations by basic salary

Basic salary	Donations
RM3000 and above	2% from basic salary
From RM2000 and less than RM3000	1.5% from basic salary
From RM1000 and less than RM2000	1.2% from basic salary
Less than RM1000	1% from basic salary

(15 marks)

Q10 Consider the following list of countries and their capitals as shown in **Table 2**.

Table 2: Country code with capitals

Code	Country	Capital
C	Canada	Ottawa
M	Malaysia	Kuala Lumpur
F	France	Paris
U	United States	Washington

Write a program that will allow user to enter the code of a country continuously until a letter 'E' is entered. Then the program will display each country and its corresponding capital. You should use arrays to store the country and its capital information.

(15 marks)

- END OF QUESTION -