



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2011/2012**

**COURSE NAME** : COMPUTER PROGRAMMING  
**COURSE CODE** : BIT 10303  
**PROGRAMME** : BACHELOR OF INFORMATION  
TECHNOLOGY  
**EXAMINATION DATE** : JANUARY 2012  
**DURATION** : 2 HOURS 30 MINUTES  
**INSTRUCTION** : ANSWER ALL QUESTIONS.

THIS QUESTION PAPER CONSISTS OF SIX (6) PAGES

**SECTION A**

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

- Q1** To refer to a particular location or element within an array, the name of the array and the value of the particular element must be specified.
- Q2** The escape sequence `\n` when used in a `printf` format control string causes the cursor to position to the beginning of the next line on the screen.
- Q3** C programming language considers the variables `number` and `Number` to be identical.
- Q4** Definitions can appear anywhere in the body of a function.
- Q5** After the last statement of a function is executed, control is transferred to the next defined function.
- Q6** A function is invoked with a function call.
- Q7** The expression `(x > y && a < b)` is true if either `x > y` is true or `a < b` is true.
- Q8** The `break` statement is required in the default case of a `switch` selection statement.
- Q9** If the value of `x` is 735, the statement `printf("%4d", x);` will display four blanks followed by 735.
- Q10** The following decision structure is invalid:

```
if x <= y
    printf("%lf", x);
else
    printf("%lf", y);
```

(10 marks)

**SECTION B**

**Instruction:** Answer **ALL** questions.

**Q11** A C program contains the following variable declarations.

```
float a = 2.5, b = 0.0005, c = 3000.0;
char d1 = ' A ' , d2 = ' B ' , d3 = ' C ' ;
```

Show the output resulting from each of the following `printf` statements.

- (a) `printf ("%f%f%f", a, b, c);` (2 marks)
- (b) `printf ("%8.3f %8.3f %8.3f", a, b, c);` (2 marks)
- (c) `printf ("%3c%3c%3c", c1 , c2, c3);` (2 marks)
- (d) `printf ("d1=%c d2=%c d3=%c", d1, d2, d3);` (2 marks)
- (e) `printf ("%8.4f%8.4f%8.4f%c%c%c", a, b, c, d3, d2, d1);` (2 marks)

**Q12** Write appropriate function prototypes for each of the following.

- (a) Function `rectangle` that takes two double-precision floating-point arguments, `side1` and `side2`, and returns a double-precision floating-point result. (2 marks)
- (b) Function `minimum` that takes three integers `a`, `b`, `c` and returns an integer. (2 marks)
- (c) Function `notes` that does not receive any arguments and does not return a value. (2 marks)
- (d) Function `calculates` that takes an integer argument `x`, two floating-point arguments `y` and `z`, and returns a floating point result. (2 marks)
- (e) Function `product` that receives two floating-point arguments `g` and `h`, two integer arguments `m` and `n`, and does not return a value. (2 marks)

**Q13** Rewrite the following `if` statement as an equivalent `switch` statement. The variable `digit` is of type `int`.

```

if (digit == 0)
    value = 3;
else if (digit == 1)
    value = 3;
else if (digit == 2)
    value = 6;
else if (digit == 3)
    value = 9;

```

(6 marks)

**Q14** State the output for the program segment below.

```

int j = 10;
for (i = 0; i < 5; ++i)
{
    printf("%d %d\n", i+1, j);
    j -= 2;
}

```

(5 marks)

**Q15** Find the error in each of the following program segments and explain how the error can be corrected.

(a)

```

int shape(void)
{
    printf("Inside function shape\n");

    int color(void)
    {
        printf("Inside function color\n");
    }
}

```

(3 marks)

(b)

```

int total(int a, int b)
{
    int result;
    result = a + b;
}

```

(3 marks)

(c)

```

int sum(int m)
{
    if(m == 0)
        return 0;
    else
        m + sum(n - 1);
}

```

(3 marks)

(d) 

```
void circle(float radius);
{
    float radius;
    printf("%f",radius);
}
```

(3 marks)

(e) 

```
void addition(void)
{
    int num1, num2, num3, total;
    printf("Enter three integers: ");
    scanf("%d %d %d", &a, &b, &c);
    total = num1 + num2 + num3;
    printf("Result is %d", total);

    return total;
}
```

(3 marks)

(f) 

```
x = 1;
{
    while ( x <= 10 );
    x++;
}
```

(3 marks)

**Q16** Write the C statement to print the values of each element of array table. Assume the array was initialized with the definition:

```
int table[ SIZE ][ SIZE ] = { { 1, 8 }, { 2, 4, 6 }, { 5 } };
```

(5 marks)

**Q17** Write a multiple alternative `if` statement to categorize a systolic blood pressure reading as depicted in **Table Q17**. Assume that the systolic blood pressure has been input as an integer.

**Table Q17**

Systolic Blood Pressure	Category
140 and higher	Hypertension
120 - 139	Pre-hypertension
Under 120	Normal

(6 marks)

## SECTION C

**Instruction:** Answer ALL questions.

- Q18** Complete the program below based on the comments given. The program inputs three integers and passes them one at a time to function `even`, which uses the remainder operator to determine if an integer is even. The function should take an integer argument and return 1 if the integer is even and 0 otherwise.

```
#include <stdio.h>

/* function prototype for function even */

int main()
{
    int x;
    int i;

    /* create a for loop for 3 inputs */
    {
        /*ask the user to enter an integer*/
        /*read input from keyboard as x*/

        if ( even( x ) )
        {
            /*display that the input is an even integer*/
        }

        else
        {
            /*display that the input is not an even integer*/
        }

    }

    return 0;
}

/*function definition for even function*/
{
    return !( a % 2 );
}
```

(15 marks)

- Q19** Write a program that asks the user to enter two integers, obtains the numbers from the user, then prints the larger number followed by the words "is larger." If the numbers are equal, print the message "These numbers are equal" Use only the single-selection form of the if statement.

(15 marks)