EASTERN UNIVERSITY, SRILANKA

EXTERNAL DEGREE EXAMINATION IN SCIENCE

FIRST YEAR FIRST SEMESTER -2003/2004 (Oct./Dec.,2006)

EXTCS103 – Introduction to Program Design & Programming
[Proper & Repeat]

Answer all questions   Time: 2Hour

Q1)

1.
    a. Define the term Flowchart.
    b. Give 5 symbols, which are used to draw a Flowchart.
    c. Draw a Flowchart to find the sum of given set of numbers. | 3*10=30 Marks |

2.
    a. Consider the following declarations in C.
    ```
    int   1Number;
    int   To-Day;
    int   My_Age;
    int   Date1;
    ```
    What can you say about these declarations? | 4*5=20 Marks |

    b. Name five reserved identifiers (KeyWords) used in C. | 10 Marks |

3. Give and explain 5 arithmetical and logical operators used in C. | 10 Marks |

4.
    a. Write the syntax for **"while"** and **"do while"** statements.
    b. What is the difference between them? | 2*15=30 Marks |

Q2)

1.
    a. Write the syntax for writing **Functions** in C. | 2*10=20 Marks |
    b. Give an example.

2. Write a function called **SolveEquation** to solve the quadric equation $ax^2+bx+c=0$.
   The above function gets three arguments **a, b, c** and prints the possible solution of the
   equation or print Error message if any.
   [NOTE: Write necessary comments and use meaningful variable names]

   $$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$ | 50 Marks |

3. Write the syntax of **printf** and **scanf**. Give example. | 2*15=30 Marks |

Q3)

1. Consider the following code in C and write the output of the code.

```c
#include<stdio.h>
#include<conio.h>
void main(){
        int n = 10;
        for(int i = 0;i < = n; i++){
                for(int j = 0; j < i; j++)
                        printf("%s","*");
        printf("\n");
        }
}
```

30 Marks

2. Write statements in C to evaluate the following expressions.

   a. $E = \dfrac{h^2 + a^2 \cos^2 v + b^2 \sin^2 v}{h^2}$

   b. $M = \dfrac{h^2}{(2rh - 2ru)\sqrt{h^2 + r^2}}$

2*20=40 Ma

3.
   a. Explain briefly about **Increment** and **Decrement** in C. Give examples.
   b. Explain briefly the function **strcpy, strlen** and **strcat**. Give examples.
   c. What will be the out put of the following code?

```c
#include <stdio.h>
void main(){
    int A = 1, B = 3, C = 5;
    printf("%d",((-A < -B) && (C >= A)));
}
```

3*10=30 Ma

Q4)

1.
   a. Write short notes on **Pointers** in C.
   b. What will be the out put of the following code?

```c
#include <stdio.h>
void main(){
    int *Iptr, a = 10;
    Iptr = &a;
    *Iptr = a + a;
    printf("%d",*Iptr);
}
```

2*15=30 M

2. Write a program to read 10 integers to an array from the user and calculate the a
   of the numbers and find the maximum form the numbers.
   [NOTE: Write necessary comments and use meaningful variable names]
   a. Declare an array size of 10.
   b. Initialize the elements in the array to 0.
   c. Write code for reading the numbers from user.
   d. Write a function **GetAverage** to return the average of the numbers.
   e. Write a function **GetMax** to return the maximum from the numbers.

5*10=50 M

3. Declare an enumerated type for Months from JAN, FEB..... NOV, DEC. Th
   month should be set to an ordinal number **1**.