

The Open University of Sri Lanka

B.Sc. Degree Programme: Level 03

Final Examination – 2006

CSU1180: Programming Perspectives and Languages



DURATION: TWO HOURS

Date: 11.11.2006

Time: 9.30 am – 11.30 am

Answer **FOUR** questions only.

At least **ONE** question from each part should be answered.

Part - A

Q1.

- (a) What is the role of a *compiler*? Explain how knowledge is related to different programming languages and phases of a compiler?
- (b) Discuss the *fifth generation languages* with respect to
 - 1) Declarative / Procedural language
 - 2) Object Oriented Programming
- (c) Briefly describe *Lexical analyser* and *Syntax analyser* of the compilation process
- (d) Why the levels of abstraction is important for understanding reality?

Q2.

- (a) Describe two advantages of the *Machine language*.
- (b) Compare the following topics in Pascal and C programming languages.
 - 1) Form of a program
 - 2) Data types
 - 3) Naming of identifiers
 - 4) Operators
 - 5) Control structures
 - 6) Input and Output facilities
- (c) Briefly describe following concepts in OO programming.
 - 1) Object
 - 2) Classes
 - 3) Attributes
 - 4) Inheritance

Part - B

Q3.

- (a) Write a Pascal program to read a set of integer numbers and calculate the *total* and the *average*. The end of the list of numbers is denoted by 0.
- (b) Compare and contrast the behavior of value parameters and variable parameters in Pascal using suitable examples.
- (c) There are 40 students in a class room. Each student offers 4 subjects. Write a program to enter marks of students and display the total of marks as follows.

Student No	Total
1	250
2	158
3	200
-	-
-	-
40	248

Q4.

- (a) Describe user defined data types in Pascal. What are the advantages of using user defined data types?
- (b) A population registry office would be interested in the following information about people in its area. Surname, forename, Name of spouse, date of birth, sex and civil status.

Write a program to read the above details of a man and a woman and to determine whether they are legally married or not. Conditions for legal marriages are:

Civil status = married
age \geq 18
man's name of spouse = woman's name of spouse

If they are legally married update their record as:
"assign man's surname to woman's surname"

- (c) Compare and contrast the behavior of local variables and global variables in Pascal using suitable examples.

Part - C

Q5.

- (a) "C language consists of more rich operators than in the Pascal language". Do you agree with this statement? If the answer is yes describe it with suitable operators.
- (b) Give a line by line explanation of the following C program. (Lines are numbered for reference)

```
#include<stdio.h>
main()
{
    int a;
    printf("Input the number");
    scanf("%d",&a);
    if (a>10)
        printf(" you win the game");
    else
        printf(" sorry, try again");
}
```

line1
line2
line3
line4
line5
line6
line7
line8
line9
line10
line11

- (c) Write down the output of the following C programs

```
1) #include<stdio.h>
main()
{
    int i,j;
    i = 0; j = 0;
    do
    {
        j=j+2*i;
        i++;
    }
    while (i < 10)
    printf("j = %d \n", j);
}
```

```
2) #include<stdio.h>
main()
{
    int i = 1, j = 3, a = 5, b = 9;

    a=i++ + j++;
    b=--j - i++;
    printf(" i = %d \n", i);
    printf(" j = %d \n", j);
    printf(" a = %d \n", a);
    printf(" b = %d \n", b);
}
```

Q6.

- (a) Write a C program to enter 50 numbers into an array and find the *total* and *average* of the given numbers.
- (b) A certain factory pays salaries for their workers in item wise they produce. For the first hundred items, they pay Rs. 30/= per item, for the next fifty items, Rs. 35/= per item and for the remaining items, Rs. 45/= per item.

Write a program to read all employee numbers, the number of items produced by each employee and calculate & print the salary of each of them with respect to their employee number. Also print the heading as *PAY SHEET*.

- (c) Write a C program to read marks of 5 students through the keyboard and to print the highest marks of them.

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