

THE OPEN UNIVERSITY OF SRI LANKA  
 B.Sc DEGREE PROGRAMME: LEVEL 03  
 FINAL EXAMINATION: SEMESTER 1- 2014/2015  
 CPU1141: INTRODUCTION TO COMPUTER PROGRAMMING



DURATION: TWO HOURS (2 HOURS)

DATE: 20<sup>th</sup> May, 2015

TIME: 1.30 p.m. – 3.30 p.m.

Answer FOUR Questions ONLY, Selecting ONE question from PART A and THREE questions from PART B. Each question carries equal marks.

PART A

Q1)

- List the types of Operators in Pascal?
- Write a short description about Operator Precedence.
- Other than the comparison statements/Operators ( $=$ ,  $>$ ,  $<$ ,  $<=$ ,  $<>$ ) there are functions, that also used as operators.
  - Write down four character operators in Pascal.
  - Describe two of them.
- Write a program in Pascal to read a set of numbers and to calculate the total of them. The program should be terminated when -1 is read.

Q2)

- What is a Compiler?
- Write down the main data types in Pascal with examples.
- Name the User Defined Data Types in Pascal?
- Write arithmetic expressions for the following formulae. (Use 'SQRT' for Square root)
  - $-x + \sqrt{x^2 - 5yz}$
  - $pv/rt$
- Write a Pascal program to Read the **month** and the **year** as integers from the user and print the number of days in that month.

**Note:**

*(1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup> months have 31 days)*

*(4<sup>th</sup>, 6<sup>th</sup>, 9<sup>th</sup> and 11<sup>th</sup> months have 30 days)*

*(if the year is a leap year 2<sup>nd</sup> month has 29 days. Otherwise it has 28 days)*

*if the year is divisible by 100 (year mod==0) it is not a leap year.*

PART – B

Q3)

- a) What do you mean by a **Constant**?
- b) State whether the following statements are *true* or *false*.
  - i. Each C program may have many main functions.
  - ii. A *float* is 4 bytes wide, whereas a *double* is 8 bytes wide.
  - iii. Functions can be called either by value or reference.
  - iv. The expression `num [1]` refers the first element in the array named `num`.
- c) Write down the different Data Types in C with examples.
- d)
  - i. What is the difference between 'Scanf' and 'gets' function?
  - ii. Write a C program to identify the behavior of the functions "*gets*" and "*scanf*".

Q4)

- a) Define Operator and Operand in C.
- b) Differentiate between the expression "`++a`" and "`a++`".
- c) What is the difference between 'for' and 'while' loops?
- d) Write a complete C program to display the multiplication table of a given number as shown below.

**Note:** *If the given number is 3,*

*Multiplication table of 3*

*3x1 =3*

*3x2 = 6*

*.....*

*.....*

*3x12 =36*

Q5)

- a) What is a *function*?
- b) What is the difference between '*break*' and '*continue*' statements?
- c)
  - i. Write a Complete C program to find the greatest of three numbers using if else statement. If all the numbers or any two numbers are equal, output message should be printed as "*All values are equal or any two numbers are equal*".
  - ii. Explain your answer for c(i) using an example.

**(Note: Consider three numbers  $a=5$ ,  $b=4$  and  $c=8$ )**

Q6)

- a) What are the differences between *Structure* and *Union*?
- b) What are the four storage classes in C?
- c) What is a **Stream**?
- d) Write a complete C Program to Calculate the Average of series of numbers entered by a user with the use of an Array. The number of numbers in the series is known.

*Hint: The output should be displayed as below.*

How many numbers do you want to enter: ..... (*If you want to enter 5 numbers*)

1. Enter number: ....
2. Enter number: ....
3. Enter number: ....
4. Enter number: ....
5. Enter number: ....

Average = ....

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