26/12/13 2nd Shift

Printed Pages—4 **ECS101**

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1601 **Roll No.** | | | | | | | | | | |

B.Tech.

(SEM. I) ODD SEMESTER THEORY

EXAMINATION 2013-14

COMPUTER CONCEPTS AND PROGRAMMING IN C

Time : 3 Hours *Total Marks : 100*

Note : (1) This paper is in **THREE** sections. Section A carries **20** marks, Section B carries **30** marks and Section C carries **50** marks.

(2) Attempt **ALL** questions. Marks are indicated against each question/part.

(3) Assume data where required.

SECTION—A

1. Answer **ALL** the parts of the following :— **(2×10=20)**

(a) What are the various functions of an operating system ?

(b) Define algorithm. What are the characteristics of an algorithm ?

(c) List various types of entry and exit control loops in C language with syntax.

(d) What is the binary equivalent of a decimal number : 252.25 ?

(e) If $a = 5;$ and $b = 7;$ then give the value of expressions a && b and a&b in C.

(f) What is the decimal equivalent of a binary number : 111001.11 ?

(g) List any four examples of secondary storage devices.

(h) Give the use of comma (,) operator in C with proper example.

(i) What is the type conversion ? Explain with some example in C.

(j) What do you mean by low level language ? Give some example of it.

SECTION—B

2. Attempt any **THREE** parts of the following :— **(10×3=30)**

(a) Take two single dimensional sorted arrays of integers, A and B of different size. Write a program in C language to merge these sorted arrays into a third array C such that all the elements are sorted and no element should be repeated.

(b) (i) Describe the major components of a digital computer with suitable block diagram.

(ii) What are various data types in C ? Explain with example.

(c) Write a program in C for the following :—

(i) Find the total surface area of a cylinder, if the diameter and the height of a cylinder is given.

(ii) To check whether a given integer is prime or not ?

(d) In a class there are fifty students, each student is enrolled for five subjects. Write a program to enter the marks of the students for different subjects and give the average marks of a student obtained by him in the subjects and overall average of the class.

(e) Write short notes on the following :—

(i) Difference between UNIX and Windows

(ii) Structured Programming.

SECTION—C

3. Attempt any **TWO** parts of the following :— **(5×2=10)**

(a) Write a short note on call by value and call by reference parameter passing method with example.

(b) Write a program in C to count the number of characters in a text file, also copy these to a different file.

(c) Differentiate between the *nested.... if* and the *switch* statements in C language with suitable example.

4. Attempt any **TWO** parts of the following :— **(5×2=10)**

(a) Write a program in C to check whether a given string is a palindrome or not ? Also give the total number of characters in the string.

(b) Write a function in C language that returns the sum of elements of the principal diagonal of a given two dimensional matrix.

(c) Define searching. Write a program in C to implement a linear search.

5. Attempt any **TWO** parts of the following :— **(5×2=10)**

(a) Create a structure to store the information about the employees of a company. List all the employees getting the salary greater than one lakh.

(b) What is static storage class ? Illustrate the use of static storage class using proper example in c language.

(c) Write a short note on linked list.

6. Attempt any **TWO** parts of the following :— **(5×2=10)**

(a) What do you mean by macros ? Illustrate the define and calling of macros with suitable example.

(b) Write a function in C that returns the sum of all the odd digits of a given positive number.

(c) Create a two dimensional character array to store the names of the students of a class using the pointers in C language. Display the name of the student having the maximum number of characters in the name.

7. Write short notes on any **TWO** of the following :— **(5×2=10)**

(a) Operator precedence and associativity.

(b) Step-wise refinement.

(c) Advantage of pointers and pointer arithmetic.