TCS-101

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

Roll No.

B. Tech.

(SEM. I) (ODD SEM.) EXAMINATION, 2011-12

FUNDAMENTALS OF COMPUTER PROGRAMMING

PAPER ID : 1305

Time : 3 Hours]   [Total Marks : 100

Note :   Attempt all questions as per direction given thereof. All questions carry equal marks. Be precise in your answer.

1   Attempt any **four** of the following :   5×4=20

(a)   Explain IEEE standard for representation of a floating point number. Also discuss the concept of biasing and normalization.

(b)   Draw the block diagram of a digital computer. Explain its various components. Discuss any five peripheral devices.

(c)   Discuss the architecture of UNIX operating system by drawing suitable diagram. Explain the following UNIX commands :

chmod, su, kill, ls, cat

(d)   Write the functions of an Operating System. Differentiate between internal and external DOS commands.

(e)   Compare and contrast mini, mainframe and micro system.

(f)   Perform the following conversions :

$(156.45)_{10} = (?)_2$

$(AC2F)_{16} = (?)_2$

$(1011010.10111)_2 = (?)_{10}$

2 Attempt any **four** of the following : 5×4=20

(a) What do you understand by the term algorithm ? Explain by giving example. List the properties of algorithm.

(b) What is the significance of using a flow chart ? Draw the flow chart for finding whether the given number is prime or not.

(c) Explain the different modes in vi editor.

(d) Write an algorithm for finding the GCD of two integers. Check the correctness of your algorithm on following data : 64, 160

(e) Discuss the different phases of a compiler. How a compiler is different from an interpreter ?

(f) "C is often called as middle level language" —Comment.

3 Attempt any **two** of the following : 10×2=20

(a) What is storage class in C ? Explain its importance. Show the usage of each storage class by making a suitable program in C.

(b) Differentiate between call by value and call by reference mechanism. Make a program in C to reverse digits of a number by using both the techniques.

(c) (i) What is recursion ? Write a recursive function for finding the factorial of a given number.

(ii) What is command line argument ? Make a program to show its usage.

4 Attempt any **two** of the followings : 10×2=20

(a) What is an array ? How two dimensional array is stored in one dimensional computer memory ? Write a program in C to find the inverse of a given matrix.

(b) Devise a program in C which takes list of words as input and gives output the number of palindromes in the given list.

(c) What is the difference between structure and union ? Declare a structure "emp1" having employee name, age and salary as data member. How using this structure write a program in C to input data of ten employees and find out the average age of employees whose salary is below ten thousand.

5 Attempt any **two** of the following : 10×2=20

(a) (i) How pointer variable is different from other variable ? Discuss pointer arithmetic.

(ii) Explain the merits and demerits of static and dynamic memory allocation techniques.

(b) (i) Write a program in C to the use of pointer to function.

(ii) Discuss the usage of calloc and malloc function taking suitable example.

(c) What is the process of declaring a file ? What are the different modes in which a file can be opened ? Write a program in C to copy the content of one file into the another file.