

B.Tech. (Main & COP)

First Semester Examination, 2016-17

Computer Concepts and Programming in C

Time: 3 Hours

Total Marks: 100

Note: Attempt all questions. Assume missing data suitably.

1. Attempt any four parts of the following: (5x4=20)
 - (a) What is digital computer? Draw its block diagram. How it is different from analog computer?
 - (b) Introduce the operating system with suitable interface diagram. Also explain its function services and types in brief.
 - (c) Solve the following:
 - (i) $(1011001011)_2 = (?)_8$
 - (ii) $(703154)_8 = (?)_{16}$
 - (iii) $(25.98)_{10} = (?)_2$
 - (iv) $(100101)_2 + (110110)_2 = (?)_2$
 - (v) Find 2's complement of $(1011000111)_2$
 - (d) What is an Algorithm? Discuss basis characteristics of an algorithm.
 - (e) Define the terms:-
 - (i) Compiler & Interpreter
 - (ii) Loader & Linker
 - (f) Differentiate among Machine language, Assembly language and High Level language.
2. Attempt any four parts of the following: (5x4=20)
 - (a) Describe about static and external storages classes in C and give one example on each.
 - (b) Describe the general structure of a C program.
 - (c) Write a program to calculate volume of a box.
 - (d) Define the following:-
 - (i) Floating point constant
 - (ii) Integer constant
 - (iii) Character constant

(e) Differentiate between the followings with suitable examples in brief:

- (i) printf() and scanf()
- (ii) clrscr() and getch()

(f) What are components of C language in brief?

3. Attempt any two parts of the following:

(10x2=20)

(a) Define recursion and its type. Write a program for finding the factorial of a given number using recursion.

(b) What are the advantages of functions in C language? What are return type of function in C? Explain the concept of call by value with example.

(c) Differentiae between the followings with suitable examples:

- (i) Break and Continue statements
- (ii) If-Else ladder and switch case.

4. Attempts any two parts of the following:

(10x2=20)

(a) What is an array? Give the syntax of array and explain its important properties. Write a program to find the sum of two matrices.

(b) Explain the following:

(i) Differentiate among the Array, Structure and Union with suitable examples.

(ii) What is structure? Explain the components of a structure.

(c) Write a program using structure to input student name, serial number, roll number and class. And print the same.

5. Attempt any two parts of the following:

(10x2=20)

(a) What is pointer? Explain with its syntax and application. Write a C program to swap the values of two variables making use of pointers.

(b) What are the various modes of file handling? Write a program that will read a file and count how many characters, spaces, tabs, and newlines are present in it.

(c) What is a macros and how it is different from a C variable? Give the advantages of using macros definitions in a program.