

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011**Third Semester**

Branch : Computer Science and Engineering/Information Technology

CS 010 303	} PROBLEM SOLVING AND COMPUTER PROGRAMMING (CS AND IT)
IT 010 306	

(Regular)

Time : Three Hours

Maximum : 100 Marks

*Write neat and efficient C programs whenever necessary.***Part A**

*Answer all questions briefly.
Each question carries 3 marks.*

1. Write the C equivalents for the following arithmetic expressions :

(i) $a + \frac{b}{c} - d.$

(ii) $\frac{a}{cd} - b.$

(iii) $a + \frac{1}{1 + \frac{1}{1+a}}.$

2. Write the syntax and one example to show the declaration and intialisation of a two-dimensional array.
3. What is function prototype ? What is its use ?
4. What happens when a pointer to a structure is incremented ?
5. Describe two bitwise shift operators. What requirements must the operators satisfy ?

(5 × 3 = 15 marks)

Part B

*Answer all questions.
Each question carries 5 marks.*

6. Describe any five data types in C with the help of examples.
7. Write a program that accepts a number from 0 to 9 alongwith a string to be displayed a specified number of times. Use "switch-case" construct.
8. What is the null character and what is it used for, in the context of strings ?

Turn over

9. Can structure declarations appear inside functions ? Explain with an example.
 10. Explain static memory allocation and dynamic memory allocation.

(5 × 5 = 25 marks)

Part C

*Answer any one full question from each module.
 Each question carries 12 marks.*

Module I

11. (a) Explain the various conversion specifications for data I/O in C. (6 marks)
 (b) Describe the features of a good program. How the efficiency of a program is expressed and improved ? (6 marks)

Or

12. With appropriate examples, explain the relational, logical and arithmetic operators in C. Give their precedence.

Module II

13. Write a C program to generate prime numbers between the range m and n .

Or

14. A and B are two given one-dimensional arrays. Read them and sort them in ascending order. Then merge them into a single sorted array C in the ascending order.

Module III

15. What is recursion ? Explain in detail, with examples, two types of parameter passing in functions.

Or

16. Develop separate C functions to implement a calculator that performs +, -, *, / and % arithmetic algebraic operations on two input numbers.

Functions names : Read (), Calculate (), Display ().

The main function should contain only function calls.

Module IV

17. Write a C program that reads several different names, addresses, age, qualification, and rearranges the names into alphabetic order and then write out the list in the alphabetic order using structure variation within the program.

Or

18. Write a C program to read N integers and find the sum of squares of all these elements using pointer.

Module V

19. Open a data file in write mode. Enter the students list in the file. Copy the data from the first file to another file. Make both files read only files.

Or

20. Discuss the four storage class specifications and list out the comparative details of the four storage classes with respect to their scope, initialisation, life time and their usage with examples.

(5 × 12 = 60 marks)