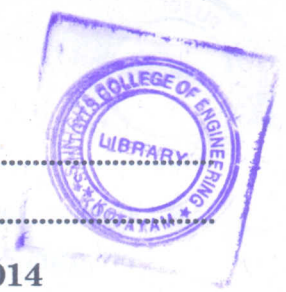


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Reg. No.....

Name.....



**B.TECH. DEGREE EXAMINATION, NOVEMBER 2014**

**Third Semester**

Branch : Computer Science and Engineering/Information Technology

CS 010 303/IT 010 306—PROBLEM SOLVING AND COMPUTER PROGRAMMING  
(CS, IT)

(New Scheme—2010 admission onwards)

[Regular/Improvement/Supplementary)

Time : Three Hours

Maximum : 100 Marks

*Write neat and efficient C programs wherever necessary.*

**Part A**

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

1. How can the getchar function be used to read multicharacter strings ?
2. List any three unconditional control statements in C ?
3. How function declaration is different from a function definition ?
4. How is a multidimensional array defined in terms of a pointer to a collection of contiguous arrays of lower dimensionality ?
5. What is the purpose and scope of an automatic variable ?

(5 × 3 = 15 marks)

**Part B**

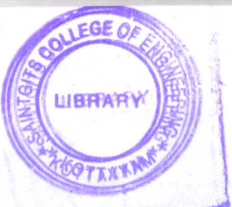
*Answer all questions.  
Each question carries 5 marks.*

6. What is the output of the following program ?

```
main ( )  
{ int x = 5 ;  
  while (x == 1)  
    x = x - 1 ;  
  printf ("% d\n", x) ; }
```

7. Write a C program to find the sum of numbers between 1 and  $n$ .
8. Explain the rules to call a function, giving appropriate examples.

Turn over



9. Give an example of a C structure and explain how members of the structure are accessed in a C program ?
10. Explain the use of `ftell ( )`, `fseek` and `fgetc ( )` functions in files.

(5 × 5 = 25 marks)

### Part C

*Answer all questions.*

*Each full question carries 12 marks.*

11. Explain the different types of operators and expressions in C. Demonstrate each one with a suitable example.

*Or*

12. With appropriate examples, explain the use of algorithm, flow-chart and pseudocodes in program development.
13. Write a C program to calculate and print the arithmetic mean, variance and standard deviation of  $n$  values.

*Or*

14. Write a C program to read the given  $n$  numbers. Find the sum of all positive and negative numbers. Find out which sum is larger in magnitude. Also print the difference in the magnitude of the two sums.
15. Write a C program to read a string and copy only the alphabets into another string. For example, "NEW DELHI-110011C" is to be copied as "NEW DELHI C".

*Or*

16. What is macro ? What are its advantages ? Write a program using macro, to find the area and perimeter of a triangle when its three sides are given.
17. Define a structure to represent time in hours (0 – 23), minutes (0 – 59), and seconds (0 – 59), and then write a function that accepts as an argument a time represented by this structure and updates it by 1 second.

*Or*

18. Write a function using pointers to add two matrices and to return the resultant matrix to the calling function.
19. Write a C program to read a data file containing integers. Find the largest and smallest integers and display them.

*Or*

20. A student master file consists of name, register number, marks, grade of 500 students in five subjects. Write a C program which reads the file and print a list of students who failed (secured 'E' grades) in one or more subjects.

(5 × 12 = 60 marks)