F 3132 (Pages : 2) Reg. No.....

Name.....

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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 mutlicharacter 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.

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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 pseuodocodes 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 member, 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)