F 3105 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Third Semester

Branch—Computer Science and Engineering/Information Technology

PROBLEM SOLVING AND COMPUTER PROGRAMMING (R, T)

(Prior to 2010 Admissions—Old Scheme)

[Supplementary/Mercy Chance]

Time : Three Hours Maximum : 100 Marks

Write neat and efficient C programs whenever necessary.

Part A

Answer **all** *questions briefly.*
Each question carries 4 *marks.*

1. Differentiate between structured and object oriented programming.
2. What are the steps involved in computer programming ? Explain.
3. Describe the basic data types and specify the size and range.
4. Write notes on variables, expressions and assignments used in C with suitable examples.
5. What is a function ? With an example, give the general syntax of a function.
6. Explain the syntax of "switch" statement. Give an example.
7. State any *four* differences between arrays and structures.
8. Why array is called a derived data type ?
9. What is pointer ? How do you access a variable through a pointer ?
10. Under what conditions can one pointer variable be compared ? Under what conditions are such comparisons useful.

(10 × 4 = 40 marks)

Part B

Answer **all** *questions.*
Each full question carries 12 *marks.*

11. Write an algorithm and draw the flow chart to exchange the values of variables x and y.

Or

12. Write the algorithm and give the flow chart to find whether a given number is prime or not.

Turn over

13. Using formatted I/O, write a C program to print all the odd numbers upto 99 in separate lines.

Or

14. With necessary examples, describe any three input and any three output formats used in C ?

15. Write a C program to write all prime numbers upto a number, which is to be received by the program from keyboard.

Or

16. Write a function in C to find the 9's complement of an integer and 10's complement of an integer. Write a main program, which accepts an integer and calling the function, prints out the 9's complement, if the number input is positive integer or the 10's complement if it is a negative integer.

17. Write a C program using structures to multiply two complex numbers. Write the programs as a function to be called from a main program.

Or

18. Write a structure in C to store an employee's hourly wages along with other data. Write a program to create an array of such employee details and then to compute and print the total salary expenditure, if the hours worked by each employee is also stored in the structure.

19. Write a function that accepts characters into a string by using a pointer. Compute the length of the array using a pointer, given that the string is terminated by a null character. Finally print the string in reverse order using a pointer.

Or

20. Write a C program that compares two files and returns '0' if they are equal and '1' if they are not. file names are passed as command line arguments.

(5 × 12 = 60 marks)