PVP 12

Code: **CS1T5**

I B.Tech - I Semester – Regular Examinations February - 2014

PROBLEM SOLVING & PROGRAM DESIGN IN C
(COMPUTER SCIENCE & ENGINEERING)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Since you are a computer science engineer your father asked you to make his small business computerized. List out the necessary hardware and software you need to procure and explain how they can be used for your father's business. 7 M

   b) What are the different steps involved in designing software? Explain with neat diagram. 7 M

2. a) You are asked to develop a program to calculate electricity bill. Identify what are the requirements to design the program. Also write the steps involved to develop the program. 7 M

   b) What are the different type conversions are there in C' language. Explain each one with specific examples. 7 M

3. a) Develop an algorithm, flowchart and program using switch-case to calculate the grade of a student according to the following information.
Read marks for 5 subjects. If the average is >090 grade is A+ ; >=80 and <90 – grade is A ; >=70 and <80 grade is B+ ; >=60 and <70 grade is B ; >=50 and <60 grade is C; <50 grade is F. 7 M

b) What is the difference between else-if ladder and nested if-else. In what situations we can use these statements. 7 M

4. a) Write the syntax of pre-test and post-test loops. Also write the differences between the event-controlled loops and counter controlled loops. 7 M

b) Develop an algorithm and program using nested for loop write a program to print the Fibonacci prime numbers. 7 M

5. a) Describe the top-down design used in C' language. Also explain how the structured charts will be helpful in top-down design. 7 M

b) Write a function factorial which determines those numbers whose factorial value ends with '0' (Zero). 7 M

6. a) You are asked to tell the marks of your classmate whose number is only divisible by 5 and 7. All the marks are

stored in a 2-dimensional array sorted according to the roll no. Write a function search which returns the your classmate marks. 7 M

b) What are the different ways the arrays can be passed through function? Why it is not necessary to return an array in a function. 7 M

7. a) In a company ABC corp. Ltd, the information of an employee stored is {employee no, employee name, date of birth, basic salary}. Identify suitable data type which maintains all the information and also calculate his monthly salary according to following details.

i) HRA is 20% of basic salary, DA is 50% of basic salary and PF is 7.5% of basic salary.

ii) Net salary obtain by adding the total HRA and DA to basic salary and subtract PF from basic salary. 7M

b) Identify with different examples the differences between structures and unions. Also identify the relevant applications of them. 7 M

8. a) Write a program to read and print a 2-dimensional dynamic array using pointers. 7 M

b) Write a program which reads a file and a substring from the command line and search for the substring in the given file. 7 M