

www.FirstRanker.com



Max. Marks: 70

## B.Tech I Year (R13) Supplementary Examinations December/January 2014/2015 **PROBLEM SOLVING & COMPUTER PROGRAMMING**

(Computer Science and Engineering)

Time: 3 hours

1

Code: 13A05101

PART – A

(Compulsory Question)

\*\*\*\*\*

- Answer the following: (10 X 02 = 20 Marks)
  - (a) Give brief description about the general problem solving strategies.
  - (b) Write a program that reads nine integers and prints them three in a line separated by commas.
  - (c) What is an expression? Give brief description about the different types of expressions.
  - (d) Given a set of n numbers design an algorithm that adds these numbers and returns the resultant sum. Assume n is greater than or equal to zero.
  - (e) Given an integer n devise an algorithm that will find its smallest exact divisor other than one.
  - (f) What is top down design? Illustrate it with the help of a diagram.
  - (g) With the help of neat sketch, explain the bitwise shift right operator.
  - (h) Draw and explain the truth table for bitwise exclusive OR operator.
  - (i) Explain the node structure of a single linked list.
  - (j) Give brief description about the block memory allocation technique.

#### PART – B

(Answer all five units, 5 X 10 = 50 Marks)

## UNIT - I

- 2 (a) Explain in detail about the system development life cycle.
  - (b) What is an identifier? What are the rules that should be followed for defining the identifiers?

### OR

- 3 (a) Write a program that prompts the user to enter an integer and then prints the integer first as a character, then as a decimal and finally as a float.
  - (b) What are the major computer hardware components? Explain them.

# UNIT - TI

- 4 (a) What is type conversion? Explain the different types of conversion in detail.
  - (b) Write a program to print the Fibonacci sequence of any given number.

#### OR

- 5 (a) With the help of a flowchart and syntax explain the for loop.
  - (b) Write a program to calculate the GCD of given two numbers.

## UNIT - III

- 6 (a) What is an array? Explain the one dimensional array with suitable example program.
  - (b) Design an algorithm that rearranges the elements in an array so that they appear in reverse order.

#### OR

- 7 (a) Given a randomly ordered array of n elements determine the  $k^{th}$  smallest element in the set.
  - (b) What is a function? In how many ways the arguments can be passed to the function? Explain them in detail.

## UNIT - IV

8 Discuss in detail about the various string manipulation functions

#### OR

- 9 (a) What is a structure? Explain how it differs from arrays.
- (b) What is a mask? Explain the one bit and two bit masks with suitable examples.

## UNIT - V

10 What are the different possible positions that a node can be deleted from a single linked list? Explain them in detail.

11 Explain in detail about the various types of standard input and output functions