Siddaganga Institute of Technology, Tumakuru – 572 103

(An Autonomous Institution affiliated to Visvesvaraya Technological University, Belgaum, Approved by AICTE, New Delhi, Accredited by NBA, New Delhi, An ISO9001:2008 Certified)

Second Semester Bachelor of Engineering Examinations May 2016

Foundations of Computer Programming

Time: 3 Hours   Max. Marks: 100

Note : 1. **Question No. 1 is Compulsory**

2. **Answer any 4 full questions from question No. 2 to Question No. 6**

1 a) _____ is designed and developed C language.

b) _____ is one of the three tools used to develop the solution in program development.

c) An _____ begins with a backslash followed by one character.

d) A null statement in C is just a _____.

e) What is an expression?

f) Write syntax of conditional operator.

g) Bubble Sort is also called as _____.

h) The C equivalent statement for the expression $\frac{Sin\theta}{Cos\theta}$ is _____.

i) Define pointer.

j) Each element in a structure is called a _____. 1×10

k) Write the recursive definition to find the factorial of a number.

ℓ) What is the output of the following code?
Assume X=10, Y=5, Z=9
If (X>10)
   X=20;
   Z=++X;
printf("%d %d",X,Z);

m) Mention different categories of data types with example for each.

n) Write any two array applications.

o) Evaluate the following expression by assuming a=0, b=44, c=-3, d=1.0 and S as float.
S= c == (a && b >> (c/d *sizeof(c) || !b)) 2×5

2 a) Explain the general structure of a C program.   6

b) Write the syntax of formatted output function and explain the conversion specification of the same in detail.   10

c) Write a C program to illustrate promotion and demotion in expressions.   4

3 a) What is an user-defined function? List the advantages of functions in C. Write a program to read an integral number, extract and print the last two digits of the number using the following basic function. Design.
    i)   Void function without parameters.   ii)   Non-void function with parameters.   10

b) Give the syntax and flowchart of if-else statement and nested if-else statement. Also write a program to simulate the functions of a Simple Calculator using switch statement.   10

4 a) Differentiate between pre-test and post-test loops. With suitable example.   6

b) What are the rules of defining a recursive function? write a program to find the Fibonacci series for n=5 using recursion.   7

c) Briefly explain arithmetic operations using pointers. Write a program to add two number using pointers.   7

Please Turn Over

5 a) Define an array. Explain the declaration and initialization of One-dimensional array with an   6

example.

b) Mention the advantage and disadvantage of binary search over linear search. Write a program to conduct binary search and to display a meaningful message after search is completed.   8

c) Write a program to check whether the matrix read is an identity matrix or not.   6

6 a) Describe any four String manipulation functions available in the standard C library.   8

b) Write the syntax to declare a structure in different ways along with suitable example.   6

c) What are bit-wise operators? Explain all the bit-wise operators.   6

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