Code : 9A05101 1

B.TECH. I Year(R09) Regular Examinations, May/June 2010
PROGRAMMING IN C & DATA STUCTURES
(Common to all branches)

Time: 3 hours **Max Marks: 70**

Answer any FIVE questions
All questions carry equal marks

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1. Clearly Explain the steps for Software Development.
2. Explain Basic C language elements.
3. (a) Write a short note on scope of a variable.
   (b) Write a program to find factorial of a given number using function with argument and with return value.
4. (a) What is a pointer? What are the features of pointers? Write a C program to print address of a variable.
   (b) Explain the declaration of pointers with examples.
5. (a) Define structure and give the general syntax for structure.
   (b) How to copy and compare structure variables. Illustrate with example.
   (c) Give the differences between structures and arrays?
6. Explain the following with example.
   (a) Sequential files.
   (b) Random Access files.
7. Discuss with example the following with respect to singly linked list
   (a) Inserting an element as the first element in the list.
   (b) Inserting an element as the last element in the list.
   (c) Inserting an element at the specified position in the list.
8. (a) Define sorting.
   (b) What is the difference between internal and external sorting methods?
   (c) Give examples for internal and external sorting methods.

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1. (a) Mention the steps involved in Software Development Method.
   (b) Briefly explain the need for software maintenance?
   (c) What is an algorithm? Explain with suitable example?
2. (a) What is a named constant Explain with examples.
   (b) What is a constant? Explain different constants in C.
   (c) What is a variable? Explain with neat diagram.
3. Define an array. What are the different types of arrays? Explain.
4. (a) Write a C Program to show that pointer of any data type occupies same space.
   (b) With proper examples explain different arithmetic operations on pointers.
5. (a) Why we need structure in C. Explain?
   (b) How to declare and initialize a structure with examples?
6. (a) Write a program to copy the contents of one file to another.
   (b) Write a program to write data to a text file and read it.
7. Discuss insertion and deletion operation in a queue using arrays?
8. (a) Discuss the algorithm of exchange sort with an example. Give its time complexity.
   (b) Write a program in C to perform selection sort in a given list of integers.

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Code : 9A05101 **3**

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1. What is a Flow Chart? Explain Different Symbols Used for Flow Chart?
2. (a) Explain different basic data types in C with Examples.
   (b) What is an identifier? What are the naming conventions used for identifiers in C.
3. Write a short notes on the following storage classes:
   (a) automatic
   (b) static
   (c) register
   (d) external.
4. (a) Write a C program to read and print an array of elements using pointers.
   (b) Explain the concept of array of pointers with examples.
5. (a) What is the use of period operator? Give an example?
   (b) Explain structure within structure using an example?
6. Discuss with examples the following File I/O handling function.
   (a) fputc()
   (b) fgetc()
   (c) fprintf().
7. Discuss insertion and deletion operation in a queue using pointers.
8. (a) Write a program in C to perform exchange sort in a given list of integers.
   (b) Discuss the algorithm of selection sort with an example. Give its time complexity.

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Code : 9A05101 4

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1. Explain the three categories of statements for Algorithm Development with examples.
2. (a) What is an output operation? Clearly explain the syntax of printf function with example.
   (b) Write a program that asks the user to enter the radius of a circle and then computes and displays the circle's area. Use the formula Area=PI* Radius * Radius where PI is the constant macro 3.14159
3. (a) Distinguish between the following:
   i. Actual and formal arguments.
   ii. Global and local variables.
   iii. Automatic and static variables.
   (b) Write a program to find the smallest element in an array.
4. (a) Explain the concept of pointer to pointers with examples.
   (b) Explain the concept of void pointers with examples.
5. (a) Write a program in C to display the size of structure elements using size of operator?
   (b) Explain the different ways of defining the structure and how to access the structure members with examples?
6. (a) Explain the following file handling functions in detail with examples.
   (i) fopen()
   (ii)fclose()
   (b) Write a program in C that interchanges the contents of two files.
7. (a) What is circular queue?
   (b) What are the advantages of circular queue over linear queue?
   (c) Write a program implementing circular queue.
8. (a) Why quick sort is said to be the most efficient sorting method? Discuss with example.
   (b) Write a program in C to perform quick sort in a given list of integers.

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