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Set-14(1)

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B.Tech-1st- (All Br.)

Programming for Problem Solving

Full Marks : 50

Time : 2.30 hours

Answer all questions.

The figures in the right-hand margin indicate marks.

Symbols carry usual meaning.

1. Answer all questions : 2×5

- (a) Write the differences between primary memory and secondary memory.
- (b) Draw a flowchart to determine whether a person is eligible for driving or not.
- (c) With a neat diagram explain the basic structure of a computer.
- (d) What is a token ? What are different types of tokens available in C language ? Explain.

(Turn Over)

(2)

(e) Explain formatted input and output statement with examples.

2. (a) Explain the different types of loops in C with syntax.

4

(b) Discuss various relational and logical operators with examples.

4

Or

(a) What is an array ? How a single dimension and two dimension arrays are declared and initialized ?

4

(b) Explain the row major and column major memory representation of array. Also mention how we can compute the address of an element in each case.

4

3. (a) What is recursion ? Explain. Write a C-program using recursive function for finding factorial of a positive number.

4

(b) Differentiate between Actual parameter and Formal parameter. Write a program in C to find out GCD of two numbers using function.

4

(3)

Or

(a) Write a program in C to find the sum and the mean of all elements in an array using pointers.

4

(b) Explain briefly how to use # define directive with suitable example.

4

4. (a) Explain the following string handling functions :

4

(i) strcmp()

(ii) strlen()

(iii) getchar()

(iv) strrev()

(v) strcut()

(vi) strcpy()

(b) Write a C program to compare two strings.

4

Or

(a) Write a program to find area of a circle using macros.

4

(4)

- (b) Write a C program to compute all possible roots of a Quadratic equation using switch statement. 4
5. (a) Write a c-program using structures to read, write, compute average- marks and display the students scoring above and below the average marks for a class of N students. 4
- (b) Write a program in C to print the following pattern: 4

```

1
1 2
1 2 3
1 2 3 4
.
```

Or

- (a) Write the functionality of `strlen()` and `strcpy()` using C program. Do not use library function. 4
- (b) What is a pointer ? How does it help in dynamic memory allocation ? Differentiate between `malloc()` and `calloc()` in C. 4

(5)

6. (a) What is FILE ? Differentiate between text file and binary file ? Explain the following file function with examples : 4
- (i) `fopen()`
 - (ii) `fclose()`
 - (iii) `feof()`
 - (iv) `fseek()`
- (b) Write a program to read two integer X and Y and swap the contents of the variable X and Y using pointers. 4
- Or*
- (a) Write a program in C that reads the name of a file and displays the contents of the file on the user screen. 4
- (b) Describe the concept of 'Function returning pointers' and 'Pointers to functions' with examples. 4