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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: I - THEORY EXAMINATION (2023-2024)

Subject: Fundamentals of Computer Science

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

20

1. Attempt all parts:-

1-a. The binary system uses powers of. [CO1]

1

- (a) 2
- (b) 10
- (c) 8
- (d) 16

1-b. Which of the following is the smallest unit of data in a computer? [CO1]

1

- (a) Bit
- (b) KB
- (c) Nibble
- (d) Byte

1-c. Which of the following is an exit controlled loop? [CO2]

1

- (a) While loop.
- (b) For loop.
- (c) do-while loop.
- (d) None of the above.

1-d. The _____ statement is usually used with the switch statement [CO2]

1

- (a) continue; statement
- (b) break; statement
- (c) leave; statement

- (d) quit; statement
- 1-e. What is the default return type if it is not specified in function definition? [CO3] 1
- (a) void
 - (b) int
 - (c) float
 - (d) short int
- 1-f. The data structure used to implement recursive function calls _____ [CO3] 1
- (a) Array
 - (b) Linked List
 - (c) Binary tree
 - (d) Stack
- 1-g. What is the minimum and maximum Indexes of this below array.? [CO4] 1
- ```
int main()
{
int ary[9];
return 0;
}
```
- (a) -1, 8
  - (b) 0, 8
  - (c) 1,9
  - (d) None of the above
- 1-h. If an integer array pointer is incremented, how many bytes will be skipped to reach next element location.? [CO4] 1
- (a) 1
  - (b) 2
  - (c) 8
  - (d) None of the above
- 1-i. For binary files, a \_\_\_\_ must be appended to the mode string. [CO5] 1
- (a) nothing
  - (b) "b"
  - (c) "binary"
  - (d) "01"
- 1-j. In C language, FILE is of which data type? [CO5] 1
- (a) int
  - (b) char\*
  - (c) struct
  - (d) None of the mentioned

2. Attempt all parts:-

- 2.a. Differentiate between primary memory & Secondary memory. [CO1] 2
- 2.b. What is the difference between if and while statement? [CO2] 2
- 2.c. Write and explain the syntax of function? [CO3] 2
- 2.d. How to initialize a multidimensional array? [CO4] 2
- 2.e. Explain the use case of getchar() function. [CO5] 2

**SECTION-B**

30

3. Answer any five of the following:-

- 3-a. Explain Machine language, Assembly language and High level language. [CO1] 6
- 3-b. Write properties of an algorithm.[CO1] 6
- 3-c. Write a C program to find the biggest of three numbers. [CO2] 6
- 3-d. Explain with syntax ,if, if-else and nested if-else statements in "C" program. [CO2] 6
- 3.e. Write a C program to find diameter, circumference and area of circle using functions [CO3] 6
- 3.f. Write a program to print value and address using pointer. [CO4] 6
- 3.g. What are different operations that can be performed on a file? Write a program to create a text file. [CO5] 6

**SECTION-C**

50

4. Answer any one of the following:-

- 4-a. What is computer? Draw the digital computer architecture and explain its all components in details. [CO1] 10
- 4-b. Write an algorithm and draw the flowchart to compute Simple Interest and Compound Interest? [CO1] 10

5. Answer any one of the following:-

- 5-a. Write a program to add two matrices of dimension 3\*3 and store the result in another matrix. [CO2] 10
- 5-b. How entry-controlled loop is different from exit-controlled loop. Write a program to print the following pattern [CO2] 10

```

* * * * *
* * * *
* * *
* *
*

```

6. Answer any one of the following:-

- 6-a. Define Recursive function? Write a C Program to find the factorial of a given number using recursive function? [CO3] 10
- 6-b. Write a program to find the given no is Armstrong number or not using functions. [CO3] 10

7. Answer any one of the following:-

- 7-a. Define string. List out all string handling function. Explain any two with example. [CO4] 10
- 7-b. Write a C program to read N integers into an array A and to find the (i)sum of odd numbers,(ii) sum of even numbers,(iii) average of all numbers. [CO4] 10
8. Answer any one of the following:-
- 8-a. Explain the following functions in file operations [CO5] 10  
(i) getw()  
(ii) putw()  
(iii) fscanf()  
(iv) fprintf()
- 8-b. What are library function? Difference between the user-defined and the library function in C each with suitable example. [CO5] 10

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