Printed page: 03 **Subject Code: ACSBS0103**

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

BACHELOR OF TECHNOLOGY (B.Tech)

(SEM: I Theory Examination (2020-2021)

SUBJECT : FUNDAMENTAL OF COMPUTER SCIENCE

Time: 3Hours **Max. Marks:100**

General Instructions:

- All questions are compulsory. Answers should be brief and to the point.
- This Question paper consists of 03 pages & 8questions.
- It comprises of three Sections, A, B, and C. You are to attempt all the sections.
- Section A -Question No- 1 is is very short answer type questions carrying 1 mark each, Question No- 2 is short answer type carrying 2 mark each. You are expected to answer them as directed.
- Section B - Question No-3 is Long answer type -I question with external choice carrying 6 marks each. You need to attempt any five out of seven questions given.
- Section C -Question No. 4-8 are Long answer type –II (within unit choice) questions carrying 10marks each. You need to attempt any one part *a* or *b*.
- Students are instructed to cross the blank sheets before handing over the answer sheet to the invigilator.
- No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION – A

1.	**Answer all the parts:**		**[10×1=10]**	**CO**
	a.	Differentiate between the Compiler and Interpreter, give example of each.	**(1)**	**CO1**
	b.	Define the Flowchart and Algorithm.	**(1)**	**CO2**
	c.	List out various Bitwise operators?	**(1)**	**CO2**
	d.	Differentiate between union and structure.	**(1)**	**CO5**
	e.	Explain function prototype?	**(1)**	**CO5**
	f.	What is the meaning of scope of a variable?	**(1)**	**CO5**
	g.	Differentiate actual and formal parameters.	**(1)**	**CO5**
	h.	What are different file opening modes in 'C'?	**(1)**	**CO5**
	i.	Differentiate between the structured and unstructured programming	**(1)**	**CO1**
	j.	What is macro?	**(1)**	**CO5**
2.	**Answer all the parts:**		**[5×2=10]**	**CO**
	a.	Describe the compilation and execution process in an IDE.	**(2)**	**CO1**
	b.	Write down any four characteristics of a good programming language.	**(2)**	**CO1**
	c.	In C- programming what will be the output of the following code, explain your answer?	**(2)**	**CO2**

```
main ()
{
 printf("\nab");
 printf("\bsi");
 printf("\rha");
}
```

d.	Give the for loop statement to print following sequence of integers: **1, 2, 4, 8, 16, 32**	**(2)**	**CO3**
e.	Describe multi-dimensional arrays with example.	**(2)**	**CO4**

SECTION – B

3. Answer any five of the following- **[5×6=30]** **CO**

a.	Illustrate with suitable example the important steps in transiting an algorithm to program.	**(6)**	**CO2**
b.	Explain in detail the Fundamental data types in 'C' language, mentioning their range, space they occupy in memory and keyword used for their representation in programming.	**(6)**	**CO2**
c.	Define recursion. Write a program in 'C' to calculate the factorial of a positive integer using recursive function.	**(6)**	**CO5**
d.	Write a program in 'C' to compute total electricity bill for the electricity power distribution company that distribute the electricity to domestic users as per following charges. Total electricity consumption is entered by user.	**(6)**	**CO3**

Units Consumed	Charges per unit
0-100 units	Rs 1.80 per unit
101-200 units	Rs 2.40 per unit exceeding 100 units
201-300 units	Rs 3.20 per unit exceeding 200 units
Above 300 units	Rs 4.50 per unit exceeding 300 units

e.	What is pointer? Discuss different ways of passing parameters to the function with suitable example.	**(6)**	**CO5**
f.	Write a program in 'C' to check whether an entered number is prime or not.	**(6)**	**CO3**
g.	**Define the following:**	**(6)**	
	i. Rules for naming an identifier.		**CO1**
	ii. Pre-processor Directives.		**CO2**
	iii. Escape Sequence		
	iv. Object code		
	v. Type conversion		

SECTION – C

CO

4 Answer any one of the following- **[5×10=50]**

a.	What are the different types of error? Explain each by taking a suitable example.	**(10)**	**CO1**
b.	Write an algorithm and draw the flow chart to compute sum of digits of a number.	**(10)**	**CO2**

5. Answer any <u>one</u> of the following-

a. Explain in detail about all the types of loops exist in 'C' programming language? Give example of each. **(10)** **CO3**

b. Explain in detail about all the types of conditional statement exist in 'C' programming language? Give example of each. **(10)** **CO3**

6. Answer any <u>one</u> of the following-

a. What is storage class in 'C'? Explain briefly the External, Auto, Static and Register Variables. **(10)** **CO5**

b. Define the operators? What is operator precedence? What are the various types of operators present in 'C' Language? **(10)** **CO2**

7. Answer any <u>one</u> of the following-

a. Write a program in 'C' to sort an array of integer into ascending order, where the size of array is entered by user. **(10)** **CO4**

b. Define a structure called **cricket** that will describe the following information: **(10)**
player name
team name
batting average **CO4**
Using **cricket**, declare an array **player** with 50 elements and write a program to enter the information about all the 50 players and print list of players with their name, team name and batting average.

8. Answer any <u>one</u> of the following-

a. Write a program in 'C' to perform multiplication of square matrices where order of matrices is entered by user. **(10)** **CO4**

b. Complete the following table of high level I/O functions for file handling in 'C' with their operation and basic syntax. **(10)** **CO5**

Sno.	Function Name	Operation	Syntax of function
1.	fopen()		
2.	getc()		
3.	putc()		
4.	fprint()		
5.	getw()		
6.	putw()		
7.	fseek()		
8.	ftell()		
9.	fscanf()		
10.	rewind()		