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**NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA**

**(An Autonomous Institute Affiliated to AKTU, Lucknow)**

**B.Tech**

SEM:II CARRY OVER THEORY EXAMINATION- AUGUST 2023

**Subject: Programming for Problem Solving using C**

**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. Which of the following are components of Central Processing Unit (CPU)? (CO1) 1
- (a) Arithmetic logic unit, Mouse
  - (b) Arithmetic logic unit, Control unit
  - (c) Arithmetic logic unit, Integrated Circuits
  - (d) Control Unit, Monitor
- 1-b. The decimal equivalent of (0.101) base 2 will be (CO1) 1
- (a) 0.5
  - (b) 0.625
  - (c) 0.25
  - (d) 0.875
- 1-c. Which is correct with respect to size of the data types? (CO2) 1
- (a) char > int > float
  - (b) int > char > float

- (c) char < int < double  
(d) double > char > int
- 1-d. What is sizeof() in C? (CO2) 1  
(a) Operator  
(b) Function  
(c) Macro  
(d) None of these
- 1-e. "continue" statement is used to (CO3) 1  
(a) continue to the next line of code  
(b) debug a program  
(c) stop the current iteration and begin the next iteration from the beginning of the loop  
(d) None of the above
- 1-f. #define directive is used to: (CO3) 1  
(a) Give default statements  
(b) Make the compilation code conditional  
(c) Undefine a macro  
(d) Define a macro
- 1-g. Which of the following variable will get memory in CPU register. (CO4) 1  
(a) register  
(b) auto  
(c) static  
(d) extern
- 1-h. The default parameter passing mechanism is (CO4) 1  
(a) Call by value  
(b) call by reference  
(c) call by value result  
(d) None
- 1-i. Which of the following true about FILE \*fp (CO5) 1  
(a) FILE is a keyword in C for representing files and fp is a variable of FILE type.  
(b) FILE is a stream  
(c) FILE is a buffered stream  
(d) FILE is a structure and fp is a pointer to the structure of FILE type

- 1-j. The first and second arguments of fopen() are (CO5) 1
- (a) A character string containing the name of the file & the second argument is the mode
  - (b) A character string containing the name of the user & the second argument is the mode
  - (c) A character string containing file pointer & the second argument is the mode
  - (d) None of the mentioned

**2. Attempt all parts:-**

- 2.a. Whats is operating system? (CO1) 2
- 2.b. How conditional operator can be replaced by if else statement, give example? (CO2) 2
- 2.c. What is the syntax of do-while loop? (CO3) 2
- 2.d. What is need of using array? (CO4) 2
- 2.e. What is Embedded System. (CO5) 2

**SECTION B**

**30**

**3. Answer any five of the following:-**

- 3-a. What are the various applications of computer? (CO1) 6
- 3-b. Write an algorithm to print area and circumference of circle. (CO1) 6
- 3-c. Write a program to swap the values of two variables without using third variable. (CO2) 6
- 3-d. Differentiate between implicit & Explicit type conversion. (CO2) 6
- 3.e. WAP to print the sum of all natural numbers up to a given number. (CO3) 6
- 3.f. Compare extern and static storage classes in C (CO4) 6
- 3.g. Explain any four file handling functions. (CO5) 6

**SECTION C**

**50**

**4. Answer any one of the following:-**

- 4-a. Define data type in C language. What are different types of data types in C. (CO1) 10
- 4-b. Write an algorithm and draw a flowchart to check if a number is positive, negative or equal to zero. (CO1) 10

**5. Answer any one of the following:-**

5-a. What do you understand by operators? Explain the various operators in C with their precedence. (CO2) 10

5-b. Write a program in C to implement bitwise operators. (CO2) 10

**6. Answer any one of the following:-**

6-a. WAP to print the Fibonacci series. (CO3) 10

6-b. WAP to print following pattern (CO3) 10

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

**7. Answer any one of the following:-**

7-a. What do you mean by recursion? Explain with the help of a program. (CO4) 10

7-b. Explain the Parameter Passing Mechanisms in C-Language with examples. (CO4) 10

**8. Answer any one of the following:-**

8-a. Write a program to read numbers from a file and write squares of these numbers into another file. (CO5) 10

8-b. Write a program to count number of vowels in a text file. (CO5) 10