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

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

**B.Tech**

**SEM: II - THEORY EXAMINATION ( 2022-2023 )**

**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. | MS-Word is an example of (CO1)                                       | 1 |
|      | (a) An operating system  |   |
|      | (b) A processing device  |   |
|      | (c) Application software   |   |
|      | (d) An input device  |   |
| 1-b. | Arrange in descending order the units of memory TB, KB, GB, MB (CO1) | 1 |
|      | (a) TB>MB>GB>KB  |   |
|      | (b) MB>GB>TB>KB  |   |
|      | (c) TB>GB>MB>KB  |   |
|      | (d) GB>MB>KB>TB  |   |
| 1-c. | Which of the following is valid variable? (CO2)                      | 1 |
|      | (a) int  |   |
|      | (b) float  |   |
|      | (c) for  |   |

- (d) average
- 1-d. What is the result of  $4 \ll 2$ . (CO2) 1
- (a) 4
  - (b) 8
  - (c) 16
  - (d) 0
- 1-e. What is the other statement that can avoid multiple nested if conditions? (CO3) 1
- (a) Functions
  - (b) Switch statements
  - (c) If-else statements with 'break'
  - (d) Loop statements
- 1-f. Part of algorithm which is repeated for fixed number of times is classified as (CO3) 1
- (a) iteration
  - (b) selection
  - (c) sequence
  - (d) reverse action
- 1-g. What is the default return type if it is not specified in function definition? (CO4) 1
- (a) void
  - (b) int
  - (c) float
  - (d) short int
- 1-h. Size of a union is determined by size of the (CO4) 1
- (a) First member in the union
  - (b) Last member in the union
  - (c) Biggest member in the union
  - (d) Sum of the sizes of all members
- 1-i. FILE is of type \_\_\_\_\_ (co5) 1
- (a) int type
  - (b) char \* type
  - (c) struct type
  - (d) None of the mentioned

- 1-j. What does API stand for? (CO5) 1
- (a) Accessing peripheral through the interface
  - (b) Application Program Internet
  - (c) Application Programming Interface
  - (d) Address Programming Interface

**2. Attempt all parts:-**

- 2.a. What do you understand by error in C program? (CO1) 2
- 2.b. What is keyword? Can these be used as an identifier? (CO2) 2
- 2.c. When do we use if-else statement? (CO3) 2
- 2.d. What do you mean by sorting? (CO4) 2
- 2.e. Write syntax of getc() and putc() functions. (CO5) 2

**SECTION B**

**30**

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

- 3-a. Describe the functionalities of operating system. (CO1) 6
- 3-b. Write an algorithm to convert temperature from fahrenheit to Celsius and vice versa. (CO1) 6
- 3-c. Explain conditional operator with the help of an example. (CO2) 6
- 3-d. If three sides of triangle are input through keyboard, write a program to check whether a triangle is isosceles, equilateral, scalene triangle. (CO2) 6
- 3.e. Write a program to find the greatest of three numbers. (CO3) 6
- 3.f. Write a program to copy the elements of an array into another array. (CO4) 6
- 3.g. What are various file opening modes in C. (CO5) 6

**SECTION C**

**50**

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

- 4-a. Discuss the major components of a digital computer with suitable block diagram. Also discuss the function of each component. (CO1) 10
- 4-b. Write an algorithm and draw flowchart to print reverse of a number. (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 logical operators. (CO2) 10

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

- 6-a. What are different conditional statements in C programming. Explain with proper example of each. (CO3) 10
- 6-b. WAP to print following pattern (CO3) 10
- ```
*  
**  
***  
****  
*****
```

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

- 7-a. Explain dynamic memory allocation with the help of an example. (CO4) 10
- 7-b. Write a program in C to multiply two matrices. (CO4) 10

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

- 8-a. Write a program to copy the contents of one file into another file. (CO5) 10
- 8-b. Explain advantages of using 8051 microcontroller with embedded system. (CO5) 10

2022-23 Jan - Jun