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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 (2021 - 2022)

Subject: Programming for Problem Solving using C

Time: 3 Hours

Max. Marks: 100

General Instructions:

1. The question paper comprises three sections, A, B, and C. You are expected to answer them as directed.
2. Section A - Question No- 1 is 1 marker & Question No- 2 carries 2 mark each.
3. Section B - Question No-3 is based on external choice carrying 6 marks each.
4. Section C - Questions No. 4-8 are within unit choice questions carrying 10 marks each.
5. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A

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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. Integer division results in (CO2) 1
- (a) Truncation
 - (b) Rounding
 - (c) Overflow
 - (d) None of these

- 1-d. What is the precedence of arithmetic operators (from highest to lowest)? (CO2) 1
- (a) %, *, /, +, -
 - (b) %, +, /, *, -
 - (c) +, -, %, *, /
 - (d) %, +, -, *, /
- 1-e. What will be the output after execution of the program? (CO3) 1
- ```
#include
int main()
{
int i=5;
while(i)
printf("Programming");
printf("Hello\n");
return 0;
}
```
- (a) It will print "Programming" 5 times
  - (b) It will print "Hello" infinite times
  - (c) It will print "Programming" infinite times
  - (d) It will print "ProgrammingHello" infinite times
- 1-f. The advantage of 'switch' statement over 'if' is that it leads to more structured program. (CO3) 1
- (a) TRUE
  - (b) FALSE
- 1-g. What will happen if in a c program you assign a value to an array element whose subscript exceeds the size of array? (CO4) 1
- (a) The element will be set to 0
  - (b) The element will be set to 1
  - (c) The compiler would report an error
  - (d) The program may crash if some important data gets overwritten.
- 1-h. What is the size of a C structure? (CO4) 1
- (a) C structure is always 128 bytes.
  - (b) Size of C structure is the total bytes of all elements of structure.
  - (c) Size of C structure is the size of largest element.

(d) None of the above

- 1-i. Which type of files can not be opened using fopen()? (CO5) 1
- (a) .txt
  - (b) .bin
  - (c) .c
  - (d) None of the above
- 1-j. Embedded C programming language support \_\_\_\_\_ instructions of normal "C" language. (CO5) 1
- (a) All
  - (b) Some
  - (c) Specific
  - (d) None

2. Attempt all parts:-

- 2.a. What is the use of main() in C program? (CO1) 2
- 2.b. Give example of unary operators? (CO2) 2
- 2.c. what is the role of preprocessor directive? (CO3) 2
- 2.d. Define the term 'local variable'. (CO4) 2
- 2.e. Differentiate between Text file and binary file. (CO5) 2

## SECTION B

30

3. Answer any five of the following:-

- 3-a. Differentiate between compiler and interpreter. (CO1) 6
- 3-b. Write a program in C that accepts the marks of 5 subjects and finds the sum and percentage marks obtained by the student. (CO1) 6
- 3-c. Explain increment/ decrement operators with the help of examples. (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. WAP to find the factorial of a given number. (CO3) 6
- 3.f. Write a program in C to find out transpose of a matrix. (CO4) 6
- 3.g. Write a program to read and write a text file. (CO5) 6

## SECTION C

50

4. Answer any one of the following:-

- 4-a. Define operating system. Explain types and functions of operating system. (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 is type conversion? Explain its types with the help of an example. (CO2) 10
- 5-b. Write a program in C to implement logical 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
- ```
*  
**  
***  
****  
*****
```
7. Answer any one of the following:-
- 7-a. What do you mean by storage class? Define the various storage classes in C. Explain each with suitable example. (CO4) 10
- 7-b. WAP to store record of 100 student using array of structures. (CO4) 10
8. Answer any one of the following:-
- 8-a. Write steps to implement Intruder alarm system. (CO5) 10
- 8-b. Write a program to count number of vowels in a text file. (CO5) 10