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GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)

B. Tech (First Semester) Examinations, December – 2024

23BBSES11003– Programming for Problem Solving

(Common to all branches)

Time: 3 hrs | Maximum: 60 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Write down the syntax and examples on printf and scanf statements.	CO1	K1
b. Differentiate between while loop and do..while loop.	CO3	K2
c. State the difference between strcmp() and strncmp() with a suitable example.	CO2	K3

d. Given code below:
#include<stdio.h>
int main()
{
int x, y, z, q;
x=10; y=5; z=3;
q = x>= y>= z ;
printf("%d", q);
return 0;
}
Find the output and justify it.
	CO4	K3

e. How do you define a structure datatype, explain with an example.	CO1	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. The result in marks of three candidates who appeared in an examination were given as input. Write a 'C' program by implementing the switch case to check and display who is having the highest marks.	5	CO3	K2
b. Briefly elaborate on each statement in the Basic structure of 'C' programming with a suitable programming example.	5	CO1	K3
(OR)			
c. The scores of three participants in a sports event were given as input, write a C program using the else if ladder concept and show who achieved the highest score.	5	CO3	K2
d. Briefly elaborate on the operators of 'C' programming listed here: arithmetic, relational, logical, conditional, increment, and decrement.	5	CO1	K3
3. a. Write a program that accepts a positive integer as input, and tests whether the given input is prime or not.	5	CO3	K3
b. Explain in brief about datatypes, Format Specifiers, Escape Sequence Characters, and type casting.	5	CO2	K2
(OR)			

c.	Write a 'C' program to test whether a given three-digit integer value is an Armstrong number or not. [Example: $1^3+5^3+3^3=153$, so 153 is Armstrong number]	5	CO3	K3
d.	Explain the terms used in programming: getchar( ), sqrt( ), #define, sizeof, unsigned int.	5	CO2	K2
4. a.	Write a C program to input 10 numbers into a one-dimensional integer array, then find the largest and smallest elements present in it.	5	CO3	K3
b.	Write a C program to input a string and test whether it is palindrome or not without using the string library functions.	5	CO3	K3
	(OR)			
c.	Write a C program to input values into two 3X3 matrices, add them, and display the resultant matrix.	5	CO3	K3
d.	Write a C program to search for a character in a given string and display the number of times the character is present in the string. [Example: character 'I' is present for two times in string "UNIVERSITY"]	5	CO3	K3
5. a.	Briefly elaborate on the storage classes and their impact on the characteristics of variables.	5	CO2	K3
b.	Write a C program that contains three user-defined functions namely ADD(), SUBTRACT(), and MULTIPLY(). Each function accepts two integers as their arguments, calculates them, and returns their results.	5	CO3	K3
	(OR)			
c.	Write a recursive function to display a series of N Fibonacci numbers. [Example: Fibonacci series is 0, 1, 1, 2, 3, 5, 8, 13… Here each number is an addition of the previous two numbers]	5	CO4	K3
d.	Write a C program to find the Greatest Common Divisor of two integers using a user-defined function.	5	CO3	K3
6. a.	Write a program to input 10 integers into an array. Create a pointer that points to the base address of the array and using the same pointer display all the elements from the last index to the 0^{th} index.	5	CO5	K2
b.	Explain the syntax of functions: malloc( ), free( ). Write a C program to store N integers by using the dynamic memory allocation concept and then display only the even numbers present in it.	5	CO5	K3
	(OR)			
c.	State the difference between call by value and call by address. Write a program to create a user-defined function used for swapping two integers using call by address concept.	5	CO5	K3
d.	Write a program to create a structure PRODUCT having members Product no, Name, and Price. Input 5 product details into a structure array and then display those products whose price is >1000 rupees.	5	CO6	K2

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