SSN College of Engineering, Kalavakkam – 603 110

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Department of Information Technology

Continuous Assessment Test – I

Question Paper

A

Degree & Branch	B.Tech., Information Technology	**Semester**	III
Subject Code & Name	**UIT1302 FUNDAMENTALS OF DATA STRUCTURES**		
Time: 90 Minutes **Date: 02.09.2020**	**Answer All Questions**	**Maximum: 50 Marks**	

Part – A (10 × 2 = 20 Marks)

K2	1) Predict output of following program
	
	int main()
	{
	int i;
	int arr[5] = {1};
	for (i = 0; i < 5; i++)
	printf("%d ", arr[i]);
	return 0;
	}
		CO1

K2	2) Predict the output of above program. Assume that the size of an integer is 4 bytes and size of character is 1 byte. Also assume that there is no alignment needed.
	
	union test
	{
	
	int x;
	char arr[8];
	int y;
	};
	
	int main()
	{
	printf("%d", sizeof(union test));
	return 0;
	
	}
		CO1

K2	3) What will be the output of the following C code?
	
	int ch = '**\t**';
	if(isprint(ch))
	printf("ch = |%c| printable **\n**", ch);
	else
	printf("ch= |%c| not printable **\n**",ch);
		CO1

K1	4) What will strcmp() and strcat() functions do?	CO1
K1	5) Define abstract data type. Give two examples.	CO1

K3	6) Output of following program?
	#include <stdio.h>
	int main()
	{
	int i = 5;
	printf("%d %d %d", i++, i++, i++);
	return 0;
	}
		CO1

K3	7) What will be the output of the following code?
	#include <stdio.h>
	#define a 10
	int main()
	{
	printf("%d ",a);
	#define a 50
	printf("%d ",a);
	return 0;
	}
		CO1

K3	8) What is the output of the given program?
	#include<stdio.h>
	int main()
	{
	int a = 6;
	int *ptr ;
	ptr = &a;
	*ptr = *ptr * 4;
	printf("%d", a);
	return 0;
	}
		CO1

K3	9) Output of following program?
	# include <stdio.h>
	void fun(int *ptr)
	{
	*ptr = 30;
	}
	int main()
	{
	int y = 20;
	int x = 10;
	x = y;
	fun(&y);
	printf("%d", y);
		CO1

	return 0; }	
K2	10) Differentiate between call by value and call by reference.	CO1

Part – B (3×6 = 18 Marks)

K3	11) You are given an array of n integers, and your task is to find two values (at distinct positions) whose sum is x. Implement this using a C program.	CO1
K3	12) Write a program in C to print all permutations of a given string using pointers. (The permutations of the string "abcd" : abcd abdc acbd acdb adcb…….)	CO1
K3	13) Write a function elapsed_time that takes as its arguments two time structures and returns a time structure that represents the elapsed time (in hours, minutes, and seconds) between the two times. So the call **elapsed_time (time1, time2)** where time1 represents 3:45:15 and time2 represents 9:44:03, should return a time structure that represents 5 hours, 58 minutes, and 48 seconds. Be careful with times that cross midnight.	CO1

Part – C (1 × 12 = 12 Marks)

K3	14. Suppose that 'P' Rupees are borrowed from a bank, with the understanding that 'A' rupees will be repaid each month until the entire loan has been repaid. Part of the monthly payment will be interest, calculated as 'i' percent of the current unpaid balance. The remainder of the monthly payment will be applied toward reducing the unpaid balance. Write a C program that will determine the following information: (i) The amount of interest paid each month. (ii) The amount of money applied toward the unpaid balance each month. (iii) The cumulative amount of interest that has been paid at the end of each month. (iv) The amount of the loan that is still unpaid at the end of each month. (v) The number of monthly payments required to repay the entire loan. (vi) The amount of the last payment (since it will probably be less than A). Test your program using the following data: P = Rs. 40,000; A = Rs 2,000; i = 1% per month.	CO1

Prepared By	Reviewed By	Approved By
Dr. N. Sripriya Course Instructor	Dr. R. Srinivasan Course Co-ordinator	HOD, IT