Department of Computer Science and Engineering

Exam: Final Year: 2019 Trimester: Summer Course: CSE 1111/CSI 121
Title: Structured Programming Language Marks: 40 Time: 2 hours

There are **FIVE** Questions. Answer all of them. Numerical figure in the right margin indicates full marks.

<table>
<tr><td>1</td><td>a)</td><td>Show manual tracing of the following code segment and find output. [CO4]
<pre>
char str1[7]={'\0'};
char str2[4]={'\0'};
int i, k;
strcpy(str1, "CSE");
strcpy(str2, "UIU");
i=strlen(str1);
for(k=0; str2[k] !='\0'; ++k)
    str1[i+k]=str2[k];
puts(str1);
printf("\n");
strrev(str1);
puts(str1);
</pre></td><td>4.0</td></tr>
<tr><td></td><td>b)</td><td>Write a program that prints all the even numbers of an input 2D array A[n][n] of integer type, where n is an input integer from keyboard. Remember that monitor displays numbers in column-wise. [CO5]
<table>
<tr><th>Sample Input</th><th>Sample Input 2D array A[n][n]</th><th>Sample Output</th></tr>
<tr><td>n=3</td><td>23 78 79
22 26 24
9 15 11</td><td>22
78 26
24</td></tr>
<tr><td>n=4</td><td>23 78 79 8
22 26 24 6
9 15 11 5
7 29 27 1</td><td>22
78 26
24
8 6</td></tr>
</table></td><td>4.0</td></tr>
<tr><td>2</td><td>a)</td><td>Show manual tracing for the following program and find output. [CO4]
<pre>
#include<stdio.h>
int a, b;
int func1(float x);
void func2(int x, float y);
int main(){
        a=11;
        b=25;
        printf("%d %d\n", a, b);
        a=func1(5.5);
        func2(12, 15.0);
        printf("%d %d\n", a, b);
</pre></td><td>4.0</td></tr>
</table>

		return 0;
		}
		int func1(float x) {
		b=b+a;
		printf("%f\n", x);
		func2(5, 4.5);
		return b;
		}
		void func2(int x, float y){
		printf("%d %f\n", x, y);
		return;
		}	

	b)	Write a program using a user defined functions to perform the following operations [CO4] i) main() reads an integer number from keyboard and sends the number to the user defined function**, int digitPosition(int number)** as parameter. ii) main() calls **int digitPosition(int number)** to find the second digit of the number from the right side and returns digit to the main(). iii) main() prints the return value from **int digitPosition(int number)** on monitor.	4.0

3	a)	Find output for the following program [CO4]
		
		#include<stdio.h>
		int func(int x);
		int main(){
		printf("%d\n", func(435));
		printf("%d", func(89));
		return 0;
		}
		
		int func(int x){
		if (x==0)
		return 0;
		else
		return x%10+func(x/10);
		}
		OR
		What will be the effect of the following program?
		#include<stdio.h>
		int main(){
		FILE *fp1;
		int i, sum;
		int num[5]={10, 20, 30, 40, 50};
		fp1= fopen("D:\\students\\dest.txt", "w");
		sum=0;
		for(i=4; i>=0; i--){
		sum=sum+num[i];
		fprintf(fp1, "%d %d\n", num[i], sum);
		}
		fclose(fp1);
		return 0;
		}
			4.0

	b	Write a program to read 10 integers from a text file, and to calculate and print the maximum among the numbers. [CO4]	4.0

4		Write a program having the structure student (name, id, marks) to perform the following operations for 4 students [CO5] a) Read name, id, marks of 4 students from keyboard b) Find the average of marks of all the 4 students. c) Display the following sample report on monitor: Rahim 10 85.0 Saiham 20 85.4 Sabera 15 82.8 Farhan 18 80.0 Average: 83.3	8.0
5	a)	Write a program to calculate and print the sum of two integer numbers stored in pointer variables a and b, where values of a and b are taken from keyboard. Remember that all the variables in the program must be pointer variables. [CO4]	4.0

	b)	Find output for the following program [CO4]
		#include<stdio.h>
		void change(int *x, int y){
		*x=*x+11;
		y=y*10;
		return;
		}
		int main(){
		int a=10; int b=20;
		printf("%d %d\n", a, b);
		change(&a, b);
		printf("%d %d\n", a, b);
		return 0;
		}
		OR
		#include<stdio.h>
		void func(int B[], int n);
		int main(){
		int A[5]={10, 20, 30, 40, 50};
		int i;
		for(i=4; i>=0; i--)
		printf("%d ", A[i]);
		func(A, 5);
		printf("\n");
		for(i=0; i<5; i++)
		printf("%d ", A[i]);
		return 0;
		}
		void func(int B[], int n){
		int i;
		for(i=0; i<n; i++)
		B[i]= (B[i]+i)*(i+1);
		return;
		}
			4.0