**United International University (UIU)**

Dept. of Computer Science & Engineering (CSE)

**Final Exam** : : Trimester: *Summer* 2020

Course Code: CSE 1111/CSI 121, Course Title: Structured Programming Language (SPL): Set A

Total Marks: 25 Duration: 1 hr 15 mins

**Answer ALL questions. Write in your own words. Do not copy & paste from web.**

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1. (a) Write code segment to lexicographically compare the two strings "forbear" and "forebear" . **Explain** your program using the two given words? [2]

   (b) Write a C program that does the following: [3]

   i. In the main function, take two strings from user as inputs.

   ii. Create a function **strConcat(….)** that will accept that two strings and a third empty string as parameters. It will append the two strings into the third string.

   iii. In main function, call the **strConcat** function and display the third string.

| Sample input | Sample Output |
|---|---|
| Hello<br>World | HelloWorld |
| Covid<br>19 | Covid19 |

2. (a) Create a structure named **Player** to store matches played, total runs, highest score, and average score of a cricket player. [1]

   (b) Write a function **struct Player takeInput()** that will take the above information for a player from keyboard and return the player structure. [1]

   (c) Write a function **void showAvgMoreThan50(struct Player players[], int len)** that will display all the details of the players who have played at least 100 matches and have an average score more than 50 on separate lines. [1.5]

   (d) In **main** function, declare an array of size **N** of type Player structures, take their inputs from keyboard, and display the information of players who have played at least 100 matches and have an average score more than 50 using the above created functions. [1.5]

3. (a) The following functions are given. (i) Which of the following function calls are valid and which are invalid? (ii) Write brief explanations for the invalid calls. [2]

```
int add(int x, int y){
    return x + y ;
}
void print_value(int x){
     printf("%d\n",x);
}
float division(float x,float y){
      return x/y ;
}
```

(i) add(2,3);

(ii) float a = division(3,2);

(iii) int b = add(4,5) * add(4,5);

(iv) add(9,2) = b;

(b) (i) In which order the following functions will be called? (ii) What will be the output of the following program? [2+1=3]

```
#include <stdio.h>

int func_x(int z){
    return z*5;
}

int func_z(int x){
    int y = func_x(x+1);
    return y;
}

int func_id(int id){
    id = func_z(id);
    return id;
}

void print(){

   printf("_____\n");
}

int main(){
    print();
    int c = func_id(100);
    printf("c = %d\n",c);

    return 0;
}
```

4. (a) What is the use of global variable in function? Explain it with an example. [2]

(b) Write a program, where in the main function, it will take input from keyboard into an integer array. Then, it calls a function **void printArray(int arr[], int n)** passing the array. You need to create the **printArray** function. The **printArray** function will print all the numbers in the array that are divisible by 7. [3]

5. (a) (i) Explain the output of the following program. (ii) Rewrite (by making necessary changes in) the code to print all the numbers between 1 to 10 in **descending** order. [2]

```c
#include <stdio.h>

void print_num(int n)
{
    printf("%d\n",n);
    print_num(n-1);
    if(n == 0) return;
}
int main()
{
    print_num(10);
}
```

(b) Write a program with a **for** loop that counts from 0 to 9. Inside the loop, it displays the numbers on the screen using a **pointer** variable**.** [2]

(c) What are the differences between C file operation mode "**r+**" and "**w+**"? [1]

**[Any examinee found adopting unfair means will be expelled from the trimester / program as per UIU disciplinary rules.]**