

University of Sargodha

BS 1st Term Examination 2019

Subject: S.E/C.S/L.T

Paper: Programming Fundamentals (CMP-2122)

Time Allowed: 2:30 Hours

Maximum Marks: 60

Note: Objective part is compulsory. Attempt any three questions from subjective part.

Objective Part (Compulsory)

- Q.1. Write short answers of the following in 2-3 lines each on your answer sheet. (12*2)
- What is **preprocessor** directive?
 - Write three rules of **declaring an identifier** in C program.
 - Differentiate **for** and **while** loop?
 - What are **primitive data types**? Shortly discuss one of them.
 - Evaluate the expression. $8-(2-4*2*(5-1)-1)$
 - What is difference b/w **prefix & postfix** operators?
 - What is meant by **fatal error**?
 - Difference b/w **Prototype** and **definition** of a function.
 - What is the purpose of **getch()**?
 - Differentiate 1-D array and 2-D array.
 - What is a **pointer**?
 - In file-processing why a programmer use **fgets** and **fputs** functions in C program.

Subjective Part (3*12)

- Q.2. Write a program to calculate the **net pay** of an employee. Input the **basic pay**, pass the basic pay to the user defines function **PayCalculate()**, calculate the net pay and return to main function. Calculate the net pay of an employee:
- House rent** is 45% of the basic.
 - Medical allowance** is 5% of basic pay if basic pay is **greater** than Rs.4000/-. It is 7% of basic pay if the basic pay is **less or equal** than Rs.4000/-.
 - Conveyance allowance** is Rs.91/-. If basic pay is **less than or equal** Rs.4000/-. It is Rs.153/- if the basic pay is **more than** Rs.4000/-.
 - Net pay is calculated by **adding basic pay, medical allowance, conveyance allowance and house rent**.
- Q.3. Write a program that stores 10 values in an array of type integer. The array and its size is passed to the user define function that finds the sum of all those values which are less than the average of all values of the array. The sum is displayed by the main function.
- Q.4. Write a program that accepts two integer numbers from the user. Pass these numbers to user define function as arguments. The function calculate their **multiplication** by using **recursion**.
Hint (multiply (int a, int b); where a and b are both positive integers, but you can only use the + or - operators for completion of this task.
- Q.5. Write a program that create a structure **Person** which represents fields by float **income**, integer **taxRate** and float **Paidtax**. Define one structure variable of Person, inputs **incomes** and **tax rate** of Person from the user. Program calculate paid tax of person and then pass structure variable to user define function **ShowRecord(Person)**. The function print the record of person on the screen.
- Q.6. Assuming that a text file named **Book.txt** contains some text written into it, write a function named **CopyLower()**, that reads the file **Book.txt** and create a new file named **newbook.txt** contains all words from the file **Book.txt** in **lowercase**. (Hint **tolower()** function converts the uppercase letter in C/C++ to the corresponding lowercase letter).