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| **Department of Electrical Engineering****Mid – Term Assignment Spring 2020****Date: 13/04/2020****Course Details** |
| **Course Title:** |  Programming Fundamentals | **Module:** | 02 |
| **Instructor:** | Sir Muhammad Waqas | **Total Marks:** | 30 |
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**Student Details**

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| Q1. | (a) | Write a program in python where you input two integer values from user and determine if the first integer is the multiple of the second integer. | Marks 5 |
| CLO 1 |
| (b) | Write a program in python for a shopping mall to determine if the customer has exceeded the credit limit on a charge account.Program should input the following facts in five variables1. Account number
2. Balance at the beginning of month (Beginning balance)
3. total of all items charged by customer this month (charges)
4. total of all credits (credits)
5. allowed credit limit

Calculate the new balanceNew balance = Beginning balance + charges – creditsYour program must determine if the new balance exceeds the allowed credit limit. If creditlimit is exceeded then program should display the message “Credit Limit exceeded.” | Marks 5 |
| CLO 1 |
| Q2. | (a) | 1. Steps that involve precise sequence to solve a problem is called

|  |  |
| --- | --- |
| 1. Statement
 | 1. Program
 |
| 1. Utility
 | 1. Routine
 |

1. In an if structure statements are executed only,

|  |  |
| --- | --- |
| 1. When the condition is false
 | 1. When it contain arithmetic operators
 |
| 1. When it contain logical operators
 | 1. When the condition is true
 |

1. Which of the following can not be a variable name?

|  |  |
| --- | --- |
| 1. area
 | 1. \_area
 |
| 1. 10area
 | 1. area2
 |

1. Which loop process is best when the number of iterations is known?

|  |  |
| --- | --- |
| 1. for
 | 1. while
 |
| 1. again
 | 1. all looping processes require that the iterations be known
 |

1. Which special character is in the end of a string to indicate the end?

|  |  |
| --- | --- |
| 1. new line
 | 1. tab
 |
| 1. null
 | 1. carriage return
 |

1. A total of \_\_\_25bytes\_\_ bytes are occupied by the following variable.

txt = “programming fundamentals”1. Commenting the code \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| 1. Makes a program easy to understand for others.
 | 1. Make programs heavy, i.e. more space is needed for executable.
 |
| 1. Makes it difficult to compile
 | 1. All of the given options
 |

 | Marks 14 |
| CLO 1 |
| Q3. | (a) | Write a program in python that will create and display the following series in the output using the formula 2x2 – 3x:65, 44, 27, 14, 5, 0, -1, 2, 9, 20 | Marks 2 |
| CLO 1 |
| (b) | You have the following python code, draw the flow chart of the whole codenumbers = range(10,20)sum = 0for i in numbers: sum = sum + iprint("Total Sum = ", sum) | Marks 3 |
| CLO 1 |

**Ans 1(a):**

number= input("Type your first number: ")

checkomundo= input("Type your second number: ")

first= int(number) % int(checkomundo)

last= int(checkomundo) % int(number)

if first ==0 :print("Your first number is a multiple of the second")

if last ==0 :print("Your second number is a multiple of the first")

print("")

if first >0 :print("Your first number is NOT a multiple of the second")

if last >0 :print("Your second number is NOT a multiple of the first")

print("")

**Ans 1(b):**

// 1. Read the problem statement.

// 2. Formulate the algorithm using pseudocode and top-down, stepwise refinement.

// 3. Write a C program.

// 4. Test, debug, and execute the C program.

//

// Exercise 3.18

// (Credit Limit Calculator) Develop a C program that will determine if a

// department store customer has exceeded the credit limit on a charge account.

// For each customer the following facts are available:

// a) Account Number

// b) Balance at the beginning of the month

// c) Total of all items charged by this customer this month

// d) Total of all credits applied to this customer's account this month

// e) Allowed credit limit

// The program should input each of these facts, calculate the new balance

// (= beginning balance + charges - credits), and determine if the new balance

// exceeds the customer's credit limit. For those whose credit limit is exceeded,

// the program should display the customer's account number, credit limit,

// new balance, and the message "Credit limit exceeded."

// 2. Pseudocode

// Determine if a customer has exceeded their credit limit

// While the user has not entered the sentinel

// Input the customer's account number

// Input the customer's balance at the beginning of the month

// Input the customer's total charges for this month

// Input the customer's total credits for this month

// Input the customer's credit limit

// Add the beginning balance to the charges this month and subtract any credits

// If the new balance is greater than the customer's credit limit

// Print the customer's account number, credit limit, new balance, and

// the message "Credit limit exceeded."

// end while

#include <stdio.h>

#include <stdbool.h>

int main() {

 int accountNumber;

 float beginningBalance, totalCharges, totalCredits, creditLimit, accountBalance;

 while(true) {

 printf( "Enter account number ( -1 to end ): " );

 scanf( "%d", &accountNumber );

 if ( accountNumber == -1 ) {

 return 0;

 }

 printf( "Enter beginning balance: " );

 scanf( "%f", &beginningBalance );

 printf( "Enter total charges: " );

 scanf( "%f", &totalCharges );

 printf( "Enter total credits: " );

 scanf( "%f", &totalCredits );

 printf( "Enter credit limit: " );

 scanf( "%f", &creditLimit );

 accountBalance = beginningBalance + totalCharges - totalCredits;

 if ( accountBalance > creditLimit ) {

 printf( "Account:\t%d\n", accountNumber );

 printf( "Credit Limit:\t%.2f\n", creditLimit );

 printf( "Balance:\t%.2f\n", accountBalance );

 printf( "Credit limit exceeded.\n" );

**Ans 2 (a):**

1. **B**
2. **D**
3. **C**
4. **A**
5. **C**
6. **21+1=22**
7. **A**

**Ans 3(a):**



**Ans 3(b):**

1) Numbers has range of numbers from 10 to 20

2) a variable name Sum Is set to 0

3) for loop is use to sum from previous value Sum currently it is zero while ,I, Has value 10 for the first pointer.

4) this addition goes on till reaches 20 and at the end result is shown which is 145 in this case

Snapshot is attached at the end

