

# Department of Electrical Engineering

## Mid – Term Assignment Spring 2020

Date: 13/04/2020

### Course Details

**Course Title:** Programming Fundamentals

**Module:** 02

**Instructor:** \_\_\_\_\_

**Total Marks:** 30

### Student Details

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**Student ID:** 16314

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 variables <ol style="list-style-type: none"> <li>1. Account number</li> <li>2. Balance at the beginning of month (Beginning balance)</li> <li>3. total of all items charged by customer this month (charges)</li> <li>4. total of all credits (credits)</li> <li>5. allowed credit limit</li> </ol> Calculate the new balance New balance = Beginning balance + charges – credits Your program must determine if the new balance exceeds the allowed credit limit. If credit limit is exceeded then program should display the message “Credit Limit exceeded.”	Marks 5 CLO 1
Q2.	(a)	<ol style="list-style-type: none"> <li>1. Steps that involve precise sequence to solve a problem is called                             <ol style="list-style-type: none"> <li>a. Statement</li> <li>b. Program</li> <li>c. Utility</li> <li>d. Routine</li> </ol> </li> <li>2. In an if structure statements are executed only,                             <ol style="list-style-type: none"> <li>a. When the condition is false</li> <li>b. When it contain arithmetic operators</li> <li>c. When it contain logical operators</li> <li>d. When the condition is true</li> </ol> </li> <li>3. Which of the following can not be a variable name?                             <ol style="list-style-type: none"> <li>a. area</li> <li>b. _area</li> <li>c. 10area</li> <li>d. area2</li> </ol> </li> <li>4. Which loop process is best when the number of iterations is known?                             <ol style="list-style-type: none"> <li>a. for</li> <li>b. while</li> <li>c. again</li> <li>d. all looping processes require that the iterations be known</li> </ol> </li> <li>5. Which special character is in the end of a string to indicate the end?                             <ol style="list-style-type: none"> <li>a. new line</li> <li>b. tab</li> <li>c. null</li> <li>d. carriage return</li> </ol> </li> <li>6. A total of _____ bytes are occupied by the following variable. txt = “programming fundamentals”</li> <li>7. Commenting the code _____                             <ol style="list-style-type: none"> <li>a. Makes a program easy to understand for others.</li> <li>b. Make programs heavy, i.e. more space is needed for executable.</li> <li>c. Makes it difficult to compile</li> <li>d. All of the given options</li> </ol> </li> </ol>	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 $2x^2 - 3x$ : 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 code <pre> numbers = range(10,20) sum = 0 for i in numbers:     sum = sum + i print("Total Sum = ", sum)                     </pre>	Marks 3 CLO 1

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Question #01:  
(Part #a)

Write a program in python where you input two integer values from user and determine if the first integer is the multiple of second integer.

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

```
checkomudo=input("Type your second number")
```

```
first=int(number)%int(checkomudo)
```

```
last=int(checkomudo)*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("")
```



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(Part #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 variables.

- 1) Account number
- 2) Balance at the beginning of month (Beginning balance)
- 3) total of the all items charged by customer this month (charges).
- 4) total of all credits (credits)
- 5) allowed credit limit

Calculate the new balance

$$\text{New balance} = \text{Beginning balance} + \text{charges} - \text{credits}$$

Your program must determine if the new balance exceeds the allowed credits limit. If credit limit is exceeded then program should display the message "credit limit exceeded".

```
# include <stdio.h>
```

```
# include <stdbool.h>
```

```
int main() {
```

```
int accountNumber;
```

```
float beginningBalance, totalCharges, totalCredits, creditLimit,  
accountBalance;
```



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```
while (true) {  
    printf("enter account Number(-1 to end): ");  
    scanf ("%d", and account Number);
```

```
    if (account number == -1) {  
        return 0;  
    }  
}
```

```
    printf("Enter beginning balance:");  
    scanf ("%f", and beginning Balance);  
    printf("enter total charges:");  
    scanf ("%f", and total charges);  
    printf("enter total credits:");  
    scanf ("%f", and total credits);  
    printf("enter credit limit:");  
    scanf ("%f", and credit limit);
```

account balance = beginning Balance + total charges - total credit;

```
if (accountBalance > credit limit) {  
    printf("Account: |t%d|\n", account Number);  
    printf("credit limit: |t%.2f|\n", credit limit);  
    printf("Balance: |t%.2f|\n", account Balance);  
    printf("credit limit exceeded.\n");  
    }  
}
```



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```
return 0;  
}
```

### Question #02 (Part #a)

- 1: Steps that involve precise sequence to solve a problem is called
- a) statement
  - b) Program
  - c) Utility
  - d) Routine
- 2: In an if structure statements are executed only,
- a) when the condition is false
  - b) when it contain arithmetic operators
  - c) when it contain logical operators
  - d) when the condition is true.
- 3: which of the following cannot be a variable name?
- a) area
  - b) -area
  - c) 10area
  - d) area2
- 4: which loop process is best when the number of iterations is known?
- a) for
  - b) while
  - c) again
  - d) all looping processes require that the iterations be known
- 5: which special character is in the end of a string to indicate the end?
- a) new line
  - b) tab
  - c) null
  - d) carriage return



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6: A total of 25 bytes bytes are occupied by the following variable. `txt = "programming fundamentals"`.

7: Commenting the code

- (A) Makes a program easy to understand for others.
- (B) Make programs heavy, i.e. more space is needed for executable.
- (C) Make it difficult to compile
- (D) All of the given options.

Question #03

(Part # b)

You have the following python code, draw the flow chart of the whole code `numbers = range(10, 20)`

`sum = 0`

`for i in numbers:`

`sum = sum + i`

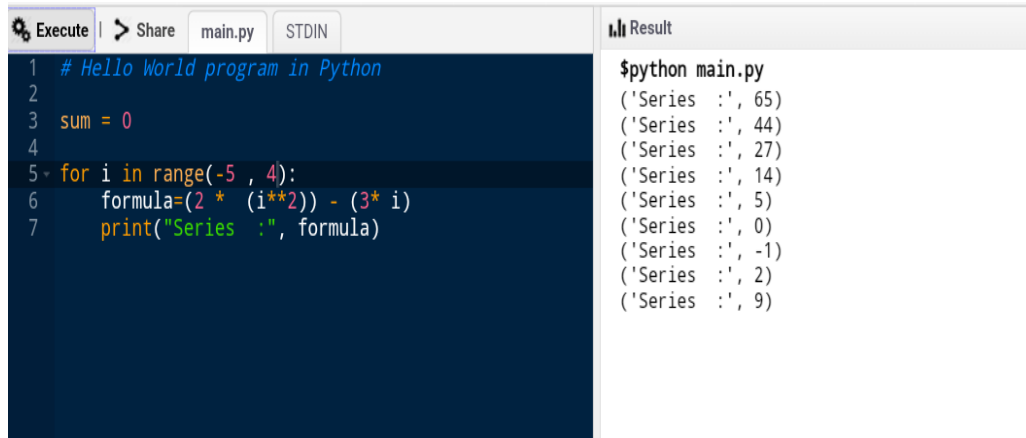
`print ("Total sum =", sum)`

- 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, 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.

Q3. (a)

Write a program in python that will create and display the following series in the output using the formula  $2x^2 - 3x$ :

65, 44, 27, 14, 5, 0, -1, 2, 9, 20



The image shows a screenshot of a Python execution environment. The left pane displays the source code for a program named 'main.py'. The code consists of seven lines: a comment, an initialization of 'sum' to 0, and a for loop that iterates over the range from -5 to 4. Inside the loop, the formula  $2x^2 - 3x$  is calculated and printed. The right pane shows the terminal output of running the program, which displays the calculated values for each iteration of the loop.

```
Execute | Share | main.py | STDIN | Result
1 # Hello World program in Python
2
3 sum = 0
4
5 for i in range(-5, 4):
6     formula=(2 * (i**2)) - (3* i)
7     print("Series :", formula)

$python main.py
('Series :', 65)
('Series :', 44)
('Series :', 27)
('Series :', 14)
('Series :', 5)
('Series :', 0)
('Series :', -1)
('Series :', 2)
('Series :', 9)
```