Tribhuvan University
Institute of Sciences and Technology
SCHOOL OF MATHEMATICAL SCIENCES
First Assessment 2079

Subject: **Programming with Python** *Full Marks:* **45**

Course No: **MDS 551** *Pass Marks:* **22.5**

Level: **MDS /I Year /II Semester** *Time:* **2 hrs**

Candidates are required to give their answer in their own words as far as practicable.

Group A [5 ×3=15]

1. What is problem analysis? Why do we need it?
2. Define variable. Explain rules for defining python variables with example. What is global variable?
3. Write a program to test whether a number is even or odd.
4. Write a program to count number of vowels in a string.
5. Explain recursive function with example.

Group B [5 × 6 = 30]

6. Explain selection statements in python with suitable example.

OR

What is looping statement? Compare for loop with white loop.

7. Explain list data type with example. How list is different from tuple? What is list comprehension?

OR

Explain dictionary data type with example. What is nested dictionary?

8. Why do we need function in programming? Explain different ways of passing arguments in functions.
9. How do you read and write CSV files in python? Explain.
10. Explain the use of break and continue statements in programming. What is nested control statement?

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Tribhuvan University
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Second Assessment 2079

Subject: **Programming with Python** *Full Marks*: **45**

Course No: **MDS 551** *Pass Marks*: **22.5**

Level: **MDS /I Year /II Semester** *Time*: **2 hrs**

Candidates are required to give their answer in their own words as far as practicable.

Group A **[5 ×3=15]**

1. Why do we need problem analysis before writing programs?
2. What is list type in python? Compare list with tuple?
3. Write a program in Python to test whether a number entered is prime or not.
4. what is recursive function? Write a recursive program to find factorial of a number.
5. Why function is important in programming? How do you create and use functions in Python?

Group B **[5 × 6 = 30]**

6. Explain each type of if statement in Python with example.

OR

How can you read and write files in Python? Explain reading and writing files with example.

7. Explain array broadcasting in NumPy with example. How do you search and sort arrays using NumPy?

OR

What is dictionary data type? Explain its uses with example. What is nested dictionary?

8. Why looping is important in programming? Explain both for and while loop with example.
9. Why pandas is important in Python programming? What is data frame? How do you handle missing data in data frame? Explain.
10. How can you draw multiple plots in one figure using pyplot ? Explain with example, how do you generate bar graphs and histograms using pyplot?

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Tribhuvan University
Institute of Sciences and Technology
SCHOOL OF MATHEMATICAL SCIENCES
First Assessment 2080

Subject: **Programming with Python**
Course No: **MDS 551**
Level: **MDS /I Year /II Semester**

Full Marks: **45**
Pass Marks: **22.5**
Time: **2 hrs**

Candidates are required to give their answer in their own words as far as practicable.

Group A **[5 ×3=15]**

1. Why do we need variables in programming? What is global variable?
2. Explain membership operators with example.
3. Write a program to test whether a number entered is leap year or not.
4. Write a program to count number of digits in a string.
5. Write a program using function to find sum of first n natural numbers.

Group B **[5 × 6 = 30]**

6. Explain for loop and while loop with example.

OR

Write a program to display prime numbers up to 100.

7. Explain list data type with example. How list is different from tuple? What is list comprehension?

OR

Explain dictionary data type with example. What is nested dictionary?

8. List some benefits of using functions. Explain different ways of passing arguments in functions.
9. How do you read and write files using Python program. Explain the process of reading and writing CSV files in Python with suitable program.
10. Explain the use of break and continue statements in programming with example. What is Pass statement?

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Tribhuvan University
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SCHOOL OF MATHEMATICAL SCIENCES
First Assessment 2080 (Re-exam)

Subject: **Programming with Python** *Full Marks*: **45**

Course No: **MDS 551** *Pass Marks:* **22.5**

Level: **MDS /I Year /II Semester** *Time*: **2 hrs**

Candidates are required to give their answer in their own words as far as practicable.

Group A [5 ×3=15]

1. Define variable. Explain global variable with example.
2. Explain identity operators with example.
3. Write a program to test whether a number entered is leap year or not.
4. Write a program to count number of whitespaces in a string.
5. Write a program using recursive function to find factorial of a number.

Group B [5 × 6 = 30]

6. Explain different forms of if statements with example.

   OR

   Write a program count even and odd numbers stored in a list.

7. Explain list data type with example. How list is different from tuple? What is list comprehension?

   OR

   Explain dictionary data type with example. What is nested dictionary?

8. List some benefits of using functions. What is return statement? Explain lambda function with example.
9. Explain the process of reading and writing CSV files with suitable program.
10. Why do we need looping in programming? What is while loop? What are the uses of break statement?

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Tribhuvan University
Institute of Sciences and Technology
SCHOOL OF MATHEMATICAL SCIENCES
Second Assessment 2080

Subject: **Programming with Python**
Course No: **MDS 551**
Level: **MDS /I Year /II Semester**

Full Marks: **45**
Pass Marks: **22.5**
Time: **2 hrs**

Candidates are required to give their answer in their own words as far as practicable.

Group A [5 ×3=15]

1. Why do we need problem analysis before writing programs?
2. Explain identity operators in Python with example.
3. What is list type in python? Compare list with tuple.?
4. Write a program in Python to test whether a number entered is palindrome or not.
5. Why do we need functions in programming? Explain recursive function with example.

Group B [5 × 6 = 30]

6. Explain each type of if statement in Python with example.

OR

How can you read and write files in Python? Explain reading and writing files with example.

7. Explain array broadcasting in NumPy with example. How do you search and sort arrays using NumPy?

OR

What is dictionary data type? Explain its uses with example. What is nested dictionary?

8. Why looping is important in programming? Explain both for and while loop with example.
9. Why pandas is important in data analysis? What is data frame? How do you merge two data frames in Pandas?
10. How can you draw multiple plots in one figure using pyplot? Explain with example, how do you generate bar graphs and pie charts using pyplot?

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MDS Ist year, II Sem.

MDS551-2079 ✡

Tribhuvan University
Institute of Science and Technology
2079
✡

Master Level / I Year /IInd Semester/ Science
Data Science (MDS 551)
(Programming with Python)

Full Marks: 45
Pass Marks: 22.5
Time: 2 hours

Candidates are required to give their answers in their own words as far as practicable.

Attempt All Questions

Group A

(5×3=15)

1. Why problem analysis is important? What is algorithm? (1.5+1.5)
2. Define variable and data type. What are different numeric types in python? (1+2)
3. Explain the use of continue statement with example. (3)
4. How do you create an array using numpy? Write a program to find sum of two matrices stored in numpy arrays. (1+2)
5. How can you draw multiple plots in one figure using pyplot? Explain with suitable example. (3)

Group B

(5×6=30)

6. Explain tuple data type with example. Compare tuple with list. Explain different ways of slicing lists with example. (1+2+3)

OR

Explain dictionary data type with example. How can you access dictionary items? Explain nested dictionary with example. (2+2+2)

7. Why do we need selection statements in programming? Explain all selection statements used in python. (2+4)

OR

Define looping statement. Why do we need looping statements in programming? Write a program to count number of odd integers in a list. (1+2+3)

8. What is function? Why do we need functions in programming? Explain different ways of passing arguments to functions with example. (1+1+4)
9. How can we read and write files in Python? Write a program that reads data from a text file, counts number of vowels in it, and writes number of vowels in a separate text file. (2+4)
10. Compare pandas data frame with series. How can you read and write CSV file using pandas? How do you merge and join data frames in pandas? Explain with suitable example. (2+2+2)

Tribhuvan University
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SCHOOL OF MATHEMATICAL SCIENCES
First Assessment 2081

Subject: **Programming with Python** *Full Marks*: **45**

Course No: **MDS 551** *Pass Marks*: **22.5**

Level: **MDS / I Year / II Semester** *Time*: **2 hrs**

Candidates are required to give their answer in their own words as far as practicable.

Group A [5 ×3=15]

1. What is virtual environment? Explain importance of indentation in Python programming.
2. Explain identity operators with example. What is pass statement?
3. Write a program to test whether a number entered is leap year or not.
4. Write a program to count number of vowels in a string.
5. Write a program using function to find sum of first n natural numbers divisible by 3 or 7.

Group B [5 × 6 = 30]

6. Explain for loop with example. Compare this loop with while loop.

OR

Write a program to display prime numbers up to 100.

7. Explain tuple data type with example. Compare tuple with tuple. Explain list comprehension with example.

OR

Explain dictionary data type with example. What is nested dictionary?

8. Why do we need functions? Explain different ways of passing arguments in functions.
9. How do you read and write files using Python program? Write a program to find sum and average of numbers stored in a file. Create a separate file to write output.
10. Explain the use of break and continue statements with suitable example of each. What is the use of else statement at the end of loops?

Tribhuvan University

Institute of Science and Technology

2081

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MDS / I Year / Second Semester/ Science

Data Science (MDS 551)

(Programming with Python)

Full Marks: 45

Pass Marks: 22.5

Time: 2 hours.

Candidates are required to give their answers in their own words as for as practicable.

The figures in the margin indicate full marks. The symbols have their usual meanings.

Attempt all questions.

Group A **[5 × 3 = 15]**

1. Explain importance of problem analysis. What different activities do you follow in problem analysis?

2. Explain membership operators in Python with example. Explain importance of indentation in Python programs.

3. Write a program to check if a number entered is Armstrong Number or not.

4. Define recursion. Write a program using recursive function to find n^{th} Fibonacci number.

5. Explain the process of reading and writing files in Python with example.

Group B **[5 × 6 = 30]**

6. Explain each type of if statement with example. Write a program that reads a file and counts number vowels in it.

OR

Why is looping important in programming? Explain for loop and while loop with suitable example. What is the use of else keywork in these loops?

7. Compare list with tuple. What is string slicing? Explain with suitable examples.

OR

Explain dictionary data type with example. How do you access dictionary items? What is nested dictionary?

8. Explain different ways of passing arguments to function with examples. What is lambda function?

9. Explain importance of Pandas in data analysis. Explain Pandas series and data frame with example. How do you create NumPy arrays from numerical range?

10. How can you draw multiple plots in one figure using pyplot? Explain with example, how can you generate pie charts and histograms using pyplot?

Tribhuvan University
Institute of Sciences and Technology
SCHOOL OF MATHEMATICAL SCIENCES
First Assessment 2082

Subject: **Programming with Python**
Course No: **MDS 551**
Level: **MDS /I Year /II Semester**

Full Marks: **45**
Pass Marks: **22.5**
Time: **2 hrs**

Candidates are required to give their answer in their own words as far as practicable.

Attempt all questions

Group A **[5 ×3=15]**

1. What are the benefits of using virtual environment to develop applications?
2. Why do we need variables in programming? What is global variable?
3. Explain identity operators with example.
4. Write a program to test whether a number entered is leap year or not.
5. Write a program to count number of digits in a string.

Group B **[5 × 6 = 30]**

6. Explain for loop with example. Write a program using function to find sum of first n natural numbers.

OR

Write a program to display prime numbers up to 100.

7. Compare list data type with tuple. What do you mean by list comprehension?

OR

Explain dictionary data type with example. What is nested dictionary?

8. List some benefits of using functions. Explain different ways of passing arguments in functions.
9. How do you read and write files in Python? Write a program that reads a text file and count number of characters in it.
10. Explain the use of break and continue statements in programming with example. What is Pass statement?

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Tribhuvan University
Institute of Sciences and Technology
SCHOOL OF MATHEMATICAL SCIENCES
Second Assessment 2082

Subject: **Programming with Python** *Full Marks*: **45**

Course No: **MDS 551** *Pass Marks:* **22.5**

Level: **MDS /I Year /II Semester** *Time*: **2 hrs**

Candidates are required to give their answer in their own words as far as practicable.

Attempt all questions

Group A [5 ×3=15]

1. Why do you need problem analysis during problem solving? Explain pseudocode with example.
2. What is virtual environment? Explain its importance in Python programming.
3. Write a program to check if a number is Armstrong Number or not.
4. Explain list comprehension with example.
5. Write a program using function to find sum first n natural numbers divisible by both 5 and 7.

Group B [5 × 6 = 30]

6. Explain if statement with example. Write a program to count number of alphabets, digits, and whitespaces in a string.

OR

What are different file opening modes in Python? Explain the process of reading and writing files.

7. Explain array broadcasting in NumPy with example. How do you search and sort arrays using NumPy?

OR

Compare list with tuple. Explain different ways to slice lists with example.

8. Why looping is important in programming? Explain both for and while loop in detail.
9. Compare data frame with series in pandas. Explain, with example, how do you merge two data frames in Pandas?
10. Explain, with example, how do you draw multiple plots in one figure.

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