

**Sixth Semester B.E. Degree Examination, July/August 2022**  
**Python Application Programming**

Time: 3 hrs.

Max. Marks: 80

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

**Module-1**

- 1 a. Explain Computer Hardware Architecture with neat diagram. (05 Marks)
- b. Explain in detail the building blocks of a program. State the need for functions in Python. (05 Marks)
- c. Explain Syntax errors, logic errors and semantic errors. List out the differences between compiler and interpreter. (06 Marks)

**OR**

- 2 a. Explain keywords, variable names with rules, operators, operands and order of operations in Python with examples. (08 Marks)
- b. Explain the concept of short circuit evaluation of logical expression in Python. Write a program to prompt the user for a score between 0.0 and 1.0. If the score is out of range print an error. If the score is between 0.0 and 1.0. Print a grade using the following table:

Score	Grade
$\geq 0.9$	A
$\geq 0.8$	B
$\geq 0.7$	C
$\geq 0.6$	D
$\geq 0.6$	F

Use try and Except so that your program handles non-numeric input gracefully by printing a message and exit the program. (08 Marks)

**Module-2**

- 3 a. Explain string slices, string methods, format operator with examples in Python. (06 Marks)
- b. Write a program which prompts the user for a Celsius temperature, convert the temperature to Fahrenheit and print out the converted temperature. (05 Marks)
- c. Explain break and continue statements with examples in Python. (05 Marks)

**OR**

- 4 a. "Strings in Python are immutable". Explain this statement with example. Write pythonic code to find the factorial of any number entered by the keyboard. (08 Marks)
- b. Explain with a neat diagram, a file handling operations in Python. Write a Python program to read the file, count and print the lines that start with the word "From". Prompt the user for the file name. (08 Marks)

**Module-3**

- 5 a. Explain list operations and methods in Python. "List are mutable". Explain this statement with example. (08 Marks)
- b. How are dictionaries and tuples used together? Demonstrate the use of tuple assignment with dictionaries to traverse the keys and values of dictionary. (08 Marks)

OR

- 6 a. Define tuple. Explain DSU pattern. (06 Marks)  
 b. Why do you need regular expressions in Python? Write a program to look for lines of the form New Revision : 39772  
 And Extract the number from each of the lines using a regular expression and the find all ( ) method. Compute the average of the numbers and print out the average. (10 Marks)

**Module-4**

- 7 a. Explain Polymorphism in Python in detail with examples. (08 Marks)  
 b. What is Operator overloading? Write pythonic code to overload "+", "-" and "\*" operators by providing the methods `__add__`, `__sub__` and `__mul__`. (08 Marks)

OR

- 8 a. Explain `__init__` method and `__str__` method? Write a str method for the point class. Create a point object and print it. (08 Marks)  
 b. What are classes and objects in Python? Explain attributes and object diagram with an example. (08 Marks)

**Module-5**

- 9 a. Define Socket. Show and explain with neat diagram, Socket connection. Write a Python program to retrieve an image over HTTP. (10 Marks)  
 b. State the need for Urllib in Python. Explain why data is retrieved in blocks. (06 Marks)

OR

- 10 a. Define XML. Construct a simple XML document and represent it with a diagram. Write Python code to loop through XML nodes in the document. (08 Marks)  
 b. Define JSON. Construct a simple JSON document. Bring out the differences between XML and JSON. Write Python code to Parse JSON document. (08 Marks)

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