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**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)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42-8 = 50, will be treated as malpractice.

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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