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**Fifth Semester B.E. Degree Examination, June/July 2024**  
**Application Development using Python**

Time: 3 hrs.

Max. Marks: 100

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

**Module-1**

- 1 a. List the salient features of python programming language. (06 Marks)
- b. Write a python program to find the area of sphere and volume of cube. Print the results. Take input from user. (06 Marks)
- c. List and explain the syntax of all flow control statements with example. (08 Marks)

**OR**

- 2 a. What is a function? How to define a function in python? Write a program using function to find out the given number is prime or not. (06 Marks)
- b. What is local and global scope of variable in python? Explain the different scenarios with an example snippet. (08 Marks)
- c. What is Exception Handling? How exceptions are handled in python? Write a python program with exception handling code to solve divide-by-zero error situation. (06 Marks)

**Module-2**

- 3 a. What is list? Explain the concept of slicing and indexing with proper examples. (06 Marks)
- b. What is Tuple? How it is different from list? Write a program to count the number of occurrences of character in a string. (06 Marks)
- c. What is Dictionary in Python? How it is different from list and tuples? Write a program to create, update and display the dictionary items. (08 Marks)

**OR**

- 4 a. List out five useful string methods. Explain with an example code for each method. (10 Marks)
- b. Compare copy.copy( ) and copy.deepcopy( ) functions with suitable examples for each. (05 Marks)
- c. Write a python program that accepts a sentence and find the number of words, digits, characters, uppercase letters and lowercase letters. (05 Marks)

**Module-3**

- 5 a. List and explain shorthand code for common character classes. Illustrate how do you define your own character class. (07 Marks)
- b. Explain the usage of caret and dollar sign characters in regular expression. (06 Marks)
- c. Write a python program to extract phone numbers and email addresses using regex. (07 Marks)

**OR**

- 6 a. What are the Ray properties of a file? Explain in detail file reading/writing process with an example of python program. (07 Marks)
- b. Explain briefly what are the different methods of file operations support in python shutil module. (07 Marks)
- c. Write a python program to create a folder PYTHON and under the hierarchy 3 files file1, file2 and file3. Write the content in file1 as "XXX" and in file 2 as "YYY" and file 3 content should be by opening and merge of file1 and file2. Check out necessary condition before writing file3. (06 Marks)

**Module-4**

- 7 a. Define classes and objects in python. Create a class called employee and initialize it with employee id and name. Design methods to:
- i) SetAge – to assign age to employee. (08 Marks)
  - ii) SetSalary – to assign salary to the employee. (05 Marks)
  - iii) Display – to display all information of the employee. (07 Marks)
- b. Illustrate the concept of modifier with python code.
- c. Explain `__init__` and `__str__` method with an example python program.

**OR**

- 8 a. Define Polymorphism. Demonstrate polymorphism with function to find histogram to count the number of times each letter appears in a word and in a sentence. (07 Marks)
- b. Illustrate the concept of pure function with python code. (06 Marks)
- c. Define class diagram. Discuss the need for representing class relationships using class diagram with suitable example. (07 Marks)

**Module-5**

- 9 a. How do we download a file and save it to hard drive using request module? (06 Marks)
- b. Write a python program to give search keyword from command line arguments and open the browser tab for each result page. (06 Marks)
- c. Explain Selenium's web drive methods for finding elements. (08 Marks)

**OR**

- 10 a. Write a program that takes a number N from command line and creates an  $N \times 100$  multiplication table in excel spread sheet. (08 Marks)
- b. Write short notes on:  
Creating, copying and rotating pages with respect to pdf. (06 Marks)
- c. Write a program that find all CSV files in the current working directory, read in the full contents of each file, write out the contents, skipping the first line, to a new CSV file. (06 Marks)

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