Subject: Computer Science   **Semester: V**
Course Title: Application   **Course Code: 20CSSEC22AD3**
           Development with Python
No. of Hours: 45   **LTP: 300**   **Credits: 3**

Objectives

- To learn and understand Python programming basics and paradigm.
- To implement lists, tuples, and dictionaries in Python programs.
- To design and implement GUI application and how to handle exceptions and files.

Course Outcomes

CO1: Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
CO2: Demonstrate proficiency in handling Exceptions and File Systems.
CO3: Learn how to use Regular Expressions and threads.
CO4: Implement GUI and web programming as used in Python.
CO5: Apply concepts of Python programming in various fields related to IOT, Web Services and Databases in Python.

UNIT-I   **(9 Hrs.)**
Python basics, Objects- Python Objects, Standard Types, Other Built-in Types, Internal Types, Standard Type Built-in Functions.
Numbers - Introduction to Numbers, Integers, Floating Point Real Numbers, Complex Numbers, Operators.
Sequences – Strings-Assigning sting to a variable, multiline strings, string methods, Lists-accessing list elements, add and change list elements, and Tuples, Mapping and Set Types – Programming Exercises.

UNIT-II   **(9 Hrs.)**
Files: File Objects, File Built-in Function [open()], File Built-in Methods-read(),write(),close(),truncate()writable() etc, File Built-in Attributes, Standard Files, Command-line Arguments, File System, File Execution.
Exceptions: Exceptions in Python, Detecting and Handling Exceptions, Exceptions as Strings, Raising Exceptions, Assertions, Standard Exceptions, Creating Exceptions, Exception chaining, user defined exceptions.
Modules: Creating a module, using a module, naming & renaming a module, built-in modules, Importing Modules, The dir() function – Programming Exercises.

UNIT-III   (9 Hrs.)

Regular Expressions: Introduction, Special Symbols and Characters, Regex functions.

Python Multithreaded Programming: Introduction, Threads and Processes, Python Threads, and the Global Interpreter Lock, Thread Module, Threading Module, Related Modules – Programming Exercises.

UNIT-IV   (9 Hrs.)

GUI Programming: Introduction, Tkinter- A sample program using Tkinter.
Web Programming: Introduction, Web Surfing with Python, Creating Simple Web Clients, Advanced Web Clients – Programming Exercises.

UNIT-V   (9 Hrs.)

Database Programming: Introduction, Python Database Application Programmer's Interface (DBAPI), Object Relational Managers (ORMs), Related Modules – Programming Exercises.

Co-Curricular Activities

- Assignments on problem solving
- Group discussions
- Student presentations and seminars
- Online quizzes
- Project work

Prescribed Books

1. Core Python Programming, Wesley J. Chun, Second Edition, Pearson.
2. Think Python, Allen Downey, Green Tea Press.
3. Introduction to Python, Kenneth A. Lambert, Cengage.
4. Python Programming: A Modern Approach, Vamsi Kurama, Pearson.

Reference Books

1. Learning Python, Mark Lutz, O' Really.
2. Web sources suggested by the teacher concerned and the college librarian including reading material.

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA – 8
(Affiliated to Krishna University)
Blueprint

Subject: Computer Science   **Semester: V**

Course Title: Application   **Course Code: 20CSSEC22AD3**
Development with Python

Time: 3 Hrs.   **Max. Marks: 100**

SECTION – A

Answer **ALL** questions   **20 x 1 = 20 M**

Q. No.	UNIT	Marks Weightage	RBT LEVEL
1	I	1	
2	I	1	
3	II	1	
4	II	1	
5	III	1	
6	III	1	**No. of questions to be set**
7	IV	1	RBT1 – 8
8	IV	1	RBT2 – 8
9	V	1	RBT3 – 2
10	V	1	RBT4 – 2
11	I	1	
12	I	1	
13	II	1	
14	II	1	
15	III	1	
16	III	1	
17	IV	1	
18	IV	1	
19	V	1	
20	V	1	

SECTION – B

Answer any **FOUR** questions   **4 x 8 = 32 M**

Q. No.	UNIT	Marks Weightage	RBT LEVEL
21	I	8	**No. of questions to be set**
22	II	8	RBT1 – 2
23	III	8	RBT2 – 2
24	IV	8	RBT3 – 1
25	V	8	RBT4 – 1
26	I / II / III / IV / V	8	

SECTION – C

Answer any **FOUR** questions   **4 x 12 = 48 M**

Q. No.	UNIT	Marks Weightage	RBT LEVEL
27	I	12	**No. of questions to be set**
28	II	12	RBT1 – 2
29	III	12	RBT2 – 2
30	IV	12	RBT3 – 1
31	V	12	RBT4 – 1
32	I / II / III / IV / V	12	

Subject: Computer Science **Semester: V**

Course Title: Application **Course Code: 20CSSEC22AD3**

Development with Python

Time: 3 Hrs. **Max. Marks: 100**

SECTION – A

Answer **ALL** questions **20 x 1 = 20 M**

1. What are the methods which begin and end with two underscore characters called?
    - A. Special methods
    - B. In-built methods
    - C. User-defined methods
    - D. Additional methods

2. Who developed the Python language?
    - A. Zim Den
    - B. Guido van Rossum
    - C. Niene Stom
    - D. Wick Van Rossum

3. To read two characters from a file object infile, we use _____.
    - A. infile.read(2)
    - B. infile.read()
    - C. infile.readline()
    - D. infile.readlines()

4. Which keyword is used for function in Python language?
    - A. Function
    - B. Def
    - C. Fun
    - D. Define

5. In Python code, an encountering a system error, the _____ does not execute the program.
    - A. Processor
    - B. Editor
    - C. Interpreter
    - D. Converter

6. Which module in Python supports regular expressions?
    - A. Re
    - B. Regex
    - C. Pyregex
    - D. Pyreg

7. Which function returns a list containing all matches?
    - A. Findall

B. Search

C. Split

D. Find

8. Which of the following tool provides a GUI in python?

   A. Numpy

   B. Tkinter

   C. Scipy

   D. Opencv

9. What protocol can be used to retrieve web pages using python?

   A. Urllib

   B. bs4

   C. HTTP

   D. GET

10. _____ is the name of the SQL database the comes distributed with Python.

    A. MySQL

    B. SQLite

    C. PySQL

    D. PostgreSQL

11. _____ is a python library that can be used to send and receive data over HTTP.

12. _____ is called the process by which search engines retrieve webpages and build a search index.

13. _____ is NOT python ORM.

14. _____ is a code library that automates the transfer of data stored in relational database tables into objects that are more commonly used in application code.

15. Program code making use of a given module is called a _____ of the module.

16. _____ method to retrieve the list of all active threads.

17. run() method is invoked by_____.

18. _____ function helps to randomize the items of a list.

19. _____ character is used to give single-line comments in Python.

20. Output of the following code : print(int(2.999)) is _____.

SECTION – B

Answer any **FOUR** questions   **4 x 8 = 32 M**

21. Explain about Built-in Types with examples in Python.

22. Differentiate the concepts modules and functions used in python.

23. Outline the File Built-in Methods used in Python with example.

24. Explain about Regular Expressions used in Python with example.

25. Describe about GUI Programming in Python.

26. Elaborate the concept of Related Modules in database programming used in Python.

SECTION – C

Answer any **FOUR** questions   **4 x 12 = 48 M**

27. Discuss about the strings with example in Python.
28. Develop a program in deleting and handling exceptions with example.
29. Describe about the Python Multithreaded Programming used in Python with example.
30. Analyse the concepts web surfing with Python and creating simple web clients in python.
31. Elaborate about DBAPI and ORMs database programming used in Python.
32. Explain the concept Numbers in python with example.