Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (R,S) / (WP), S4 (PT) Exam April 2025 (2019 Scheme)

Course Code: CST362

Course Name: PROGRAMMING IN PYTHON

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1		Differentiate between definite iteration and indefinite iteration in Python	(3)
2		Write a python program to reverse a number and also find the sum of the digits of that number.	(3)
3		Define recursion and write a program in python to generate Fibonacci series using recursion.	(3)
4		Define higher order functions used for mapping, filtering and reducing with examples.	(3)
5		Write a python program to draw a star using turtle.	(3)
6		Explain event driven programming in python with a programming example.	(3)
7		Explain the terms accessors and mutators in Python class definition.	(3)
8		Illustrate method overriding in python with a programming example.	(3)
9		Demonstrate the significance of sys module in python.	(3)
10		Narrate the use of flask in web development.	(3)

PART B

Answer one full question from each module, each carries 14 marks.

Module I

11	a)	Discuss the steps involved in the waterfall model of software development process with the help of a neat diagram.	(8)
	b)	Write a python program to print the pattern using for loop.	(6)

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

OR

12	a)	Write a Python program to print all numbers between 100 and 1000 whose sum	(8)

of digits is divisible by 3.

b) Explain the concept of lazy evaluation in python with a programming example. (6)

Module II

13 a) Define the concept of Caesar cipher and write the programs for encryption and decryption with distance +3 for the lowercase alphabet. (8)

b) Define how dictionary associates data values and keys in python. Explain with syntax and example. (6)

a. Adding a key value pair.

b. Accessing values.

c. Traversing a Dictionary.

OR

14 a) Demonstrate the use of any four list methods with programming examples. (8)

b) Write a Python program to convert a decimal number to its binary equivalent. (6)

Module III

15 a) Write a python GUI program which draws coordinates of mouse presses on a canvas. (7)

b) Write a python program to blur an image. (7)

OR

16 a) Define image processing and write a python program for detecting the edges of a colour image. (8)

b) Write a program to draw a pentagon and fill colour blue using turtle without using loop and with a delay of 2 secs. (6)

Module IV

17 a) Define Inheritance in python. Explain single inheritance and hybrid inheritance with programming examples. (7)

b) Write a Python program for a simple calculator using the concept of class definition. The calculator class must contain the methods to perform basic arithmetic operations. (7)

OR

18 a) What are exceptions? How does Python catch it? Illustrate the usage. (7)

b) Explain in detail about abstract class in python with an example. (7)

Module V

19 a) Create a matplotlib plot with two lines representing the functions $y=\sin(x)$ for $0 \leq x \leq 2\pi$ (use a solid line) and $y=\cos(x)$ for $0 \leq x \leq 2\pi$ (use a dashed line). (7)

Customize the plot by adding appropriate ticks, labels for the x and y axes, and a legend to distinguish between the two functions.

b) Define Numpy. Explain the libraries random and pandas in python with programming examples. (7)

OR

20 a) Consider a CSV file 'employee.csv' with the following columns (name, gender, joining date, salary, institution). Write commands to do the following using pandas library. (8)

1. Print all records from employee file.
2. Print all employee names in alphabetical order.
3. Print the names of the employees based on salary from highest to lowest.
4. Print all names of employees with respective institution they belong.

b) Write Python program to write the following data to a CSV file. (6)

Player	Team	Role	ODI Average
Saurav Ganguly	India	Hard Hitter	41
Kane Williamson	New Zealand	Aspirant	49.2
Ricky Ponting	Australia	Accumulator	42
Kevin Peterson	England	Hard Hitter	40.7
Lance Klusener	South Africa	Accumulator	41.1

****