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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S, FE) / S4 (PT) (S) Examination January 2024 (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	Explain type conversion with example.	(3)
2	Write a program that accepts the lengths of three sides of a triangle as inputs and outputs whether or not the triangle is a right triangle.	(3)
3	Differentiate between lists and tuples with the help of examples.	(3)
4	Write a Python program to print all palindromes in a line of text.	(3)
5	Comment on event driven programming.	(3)
6	Write a Python program to draw a hexagon using turtle graphics.	(3)
7	Give an example for constructor overloading.	(3)
8	Explain method overriding in Python.	(3)
9	Explain the attributes of an ndarray object.	(3)
10	Explain 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 all numbers between 100 and 1000 whose sum of digits is divisible by 9. (6)

OR

12 a) Illustrate the use of range() in Python. (6)

    b) Write a Python program to print all prime factors of a given number. (8)

Module II

13 a) Write a Python program to compute the sum of the series $(1 - x^2/2! + x^4/4! - x^6/6! + \ldots\ldots n$ terms$)$. (6)

    b) Illustrate the use of any four dictionary methods. (8)

OR

14 a) Write a Python program to convert a decimal number to its binary equivalent. (7)

b) Write a Python program to read a text file and store the count of occurrences of (7)
each character in a dictionary.

Module III

15 a) Write a Python program to convert a color image to a grayscale image. (6)

b) Explain the attributes and methods of Turtle object. (8)

OR

16 a) Write Python GUI program to input two strings and output a concatenated string (6)
when a button is pressed.

b) Discuss on the types of window components and their functions. (8)

Module IV

17 a) Illustrate the use of abstract classes in Python. (6)

b) Define a class Student in Python with attributes to store the roll number, name (8)
and marks of three subjects for each student. Define the following methods:

readData()- to assign values to the attributes

computeTotal() – to find the total marks

print_details() - to display the attribute values and the total marks

Create an object of the class and invoke the methods.

OR

18 a) Explain, with the help of suitable examples, the different types of inheritance. (8)

b) Write a Python program to demonstrate the use of try, except and finally blocks. (6)

Module V

19 a) Consider a CSV file 'weather.csv' with the following columns (date, (8)
temperature, humidity, windSpeed, precipitationType, place, weather {Rainy,
Cloudy, Sunny}).

Write commands to do the following using Pandas library.

1. Print first 10 rows of weather data.

2. Find the maximum and minimum temperature

3. List the places with temperature less than 28°C.

4. List the places with weather = "Cloudy"

5. Sort and display each weather and its frequency

6. Create a bar plot to visualize temperature of each day.

b) Explain the different ways by which numpy arrays are created. (6)

OR

20 a) Write Python program to write the data given below to a CSV file. (5)

Sl No.	Title	Author	Available	Count
1	The Great Gatsby	F. Scott Fitzgerald	Y	20
2	Pride and Prejudice	Jane Austen	Y	15
3	The Time Machine	H.G. Wells	N	0

b) Write a Python program to input two matrices and perform the following operations using numpy and display the results: (9)

1. Add the matrices
2. Subtract the matrices
3. Multiply the matrices
4. Find transpose of the matrices

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