H Roll No. ....

TCS–320

B. TECH. (CSE) (THIRD SEMESTER) END SEMESTER EXAMINATION, Jan., 2023

APPLICATION BASED PROGRAMMING IN PYTHON

Time : Three Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any *two* sub-questions among (a), (b) and (c) in each main question.

(iii) Total marks in each main question are **twenty**.

(iv) Each sub-question carries 10 marks.

1. (a) Explain with suitable code and examples, what are different data types in python. Explain at least eight different data types and four functions of each such data types.

(CO1)

P. T. O.

(b) Explain what is slicing of a string stand, explain all possible scenarios with suitable code. Also explain the scenarios when slicing of a string would give errors.(CO1)

(c) Explain with suitable code and examples, how to create CALCULATOR in python. Make sure that when we run the file it checks or verifies all the functionalities but when the file is imported the verification should not take place, only imported methods should be executed.

(CO1)

2. (a) Explain about given Data Structures in details with suitable examples. Explain at least four functions of each of Data Structure.   (CO2)

   (i) LIST

   (ii) SET

   (iii) TUPLE

   (iv) DICTIONARY

(b) Explain with suitable code, how to create Stack and Queues from a list. Explain the pros and cons of using Stack and Queues as a list in detail.   (CO2)

(c) Explain the major differences between list and tuple. Explain the pros and cons of using list and tuple. Explain the best scenarios when list should be used and tuple should be used.   (CO2)

3. (a) Explain the need of File Handling. Explain all types of modes in which you can open a file. Provide suitable code if required.

(CO3)

(b) Explain the need of Exception Handling. Explain all the components of Exception Handling, at least four. Provide suitable code if required.

(c) Write suitable code to handle file not found exception when you try to open a file in "r or "r+" mode. Explain the reason of exception to occur in such a scenario.

(CO3)

4. (a) Write python programs of given tasks :

(i) Write a Python program that matches a string that has an a followed by one or more b's

P. T. O.

(ii) Write a Python program that matches a string that has an 'a' followed by anything, ending in 'b.

(iii) Write a Python program to replace whitespaces with an underscore and vice versa.

(b) Write python programs of given tasks :

(CO4)

(i) Write a Python program to replace all occurrences of space, comma, or dot with a colon.

(ii) Write a Python program to extract values between quotation marks of a string.

(iii) Write a Python program that matches a string that has an a followed by two to three 'b'.

(c) What is RegEx in python ? Explain all major methods in re modules with suitable code and examples.   (CO4)

5. (a) What do you understand by Inheritance ? What are the different types of Inheritance with suitable code and examples ?   (CO5)

(b) Explain about given tasks with suitable code and examples.   (CO5)

   (i) Lambda function

   (ii) Class and Object

   (iii) Instance Variable

   (iv) OS and SYS modules

(c) What is Polymorphism hierarchy in Object Oriented Programming ? Explain all the types of Polymorphism with suitable examples.

   Also Explain what is Data Hiding in python with suitable code and examples.

                    (CO5)