

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Third Semester B.Tech Degree Examination December 2020 (2019 Scheme)

**Course Code: ITT205****Course Name: PROBLEM SOLVING USING PYTHON**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions. Each question carries 3 marks*

Marks

- |    |   |     |
|----|---|-----|
| 1  | What are keywords? Give examples.   | (3) |
| 2  | When should we use nested if statements? Explain with an example.   | (3) |
| 3  | Write a program that converts a sentence entered by the user into a list of words   | (3) |
| 4  | Illustrate when to use list, tuple and dictionary with example.   | (3) |
| 5  | What are packages in Python?  | (3) |
| 6  | Write a Python function that will accept three arguments x, y and z. Find x+y and if the sum is greater than z, return the square root of $(x^2+y^2)$ . Otherwise return 0. | (3) |
| 7  | What is the advantage of using pickling? Explain the “dump” and “load” methods.   | (3) |
| 8  | Explain the utility of <i>open()</i> function.  | (3) |
| 9  | What is the significance of <i>_init_()</i> method?   | (3) |
| 10 | What is class instantiation? How is it done?  | (3) |

**PART B***Answer any one full question from each module. Each question carries 14 marks***Module 1**

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|----|--|------|
| 11 | a. List the rules to name an identifier in Python                            | (4)  |
|    | b. Write a program to generate all prime numbers in a given range.           | (10) |
| 12 | a. Write a program to read a number and then calculate the sum of its digits | (6)  |
|    | b. What are the different operators used in Python? Briefly explain it.      | (8)  |

**Module 2**

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|----|--|-----|
| 13 | a. Write a Python program to add ‘ing’ at the end of a string. If the string already ends with ‘ing’ then add ‘ly’ | (8) |
|    | b. What is meant by mutability of a data structure? Explain with help of lists and tuples.                         | (6) |

- 14 a. Write a program to print index at which a particular value exists in a list of numbers. If the value exists at multiple locations in the list, then print all the indices. (8)
- b. Write a Python program to create a dictionary of roll numbers and names of five students. Display the contents of dictionary in alphabetical order of names. (6)

**Module 3**

- 15 a. Differentiate between global and local variables. (6)
- b. Write a program to read an integer number. Print the reverse of this number using recursion (8)
- 16 a. Write a function that accepts two positive numbers n and m, where  $m \leq n$ , and returns numbers between 1 and n that are divisible by m. (8)
- b. Compare the built-in functions `int ()` and `str ()` with examples. What are they used for? (6)

**Module 4**

- 17 a. Write a program that infinitely prints natural numbers. Raise the *StopIteration* exception after displaying first 20 numbers to exit from the program. (6)
- b. Write a program that reads a file and prints only those lines that have the word “python” in it. (8)
- 18 a. How are exceptions handled in Python? Illustrate with example. (6)
- b. Write a program that reads a file and copies its contents into another file. While copying, replace all full stops with commas. (8)

**Module 5**

- 19 a. Make a class *Book* with members title, author, publisher and ISBN number. Write functions for the class that will read and display the data. (8)
- b. Create a class *Student* with attribute name and roll no. and a method *dataprint()* for displaying the same. Create two instances of the class and call the method for each instance. (6)
- 20 a. Explain the term class, object and attributes. (6)
- b. Create a class *employee* with attribute name, age and salary. Write a method *briefdetails()* for displaying the same, by creating instances and methods for the same. (8)

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