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**Code No. : 13154 S (G) N/O**

# VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD

*Accredited by NAAC with A++ Grade*

## B.E. III-Semester Supplementary Examinations, August-2023

## Principles of Python Programming (OE-I)

Time: **3 hours** Max. Marks: **60**

*Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B***

***Part-A (10 × 2 = 20 Marks)***

| Q. No. | Stem of the question | M | L | CO | PO |
|---|---|---|---|---|---|
| 1. | Write the output of the given code:<br>i=5<br>while i>=0:<br>print(i)<br>i=i-1 | 2 | 2 | 1 | 1 |
| 2. | Write Pythonic code to check if a given year is a leap year or not. | 2 | 3 | 1 | 1,2 |
| 3. | What is lamda function ? Give example. | 2 | 2 | 2 | 1,2 |
| 4. | Write a Python program to convert height in feet and inches to cm.<br>[1 feet = 12 inch and 1 inch= 2.54 cm]<br>(Sample input: 2 feet 7 inch Sample output: 78.74 cm) | 2 | 3 | 2 | 1,2 |
| 5. | What are advantages of Tuple Over List | 2 | 1 | 3 | 1,2 |
| 6. | Write Pythonic code to find Mean, Variance and Standard Deviation for a given list of numbers.<br>List=[4,2,0,1,3,45,23,89] | 2 | 3 | 4 | 1,2,3 |
| 7. | Discuss zip() function with an example. | 2 | 2 | 4 | 1,2 |
| 8. | Write Python program to generate a dictionary that contains (i: i*i) such that i is a number ranging from 1 to n. | 2 | 3 | 4 | 1,2 |
| 9. | What are different applications of Python? Give examples | 2 | 2 | 1 | 1,2 |
| 10. | Write a python program to determine whether a person is eligible to vote or not. | 2 | 3 | 2 | 1,2 |
| | ***Part-B (5×8 = 40 Marks)*** | | | | |
| 11. a) | Describe Arithmetic Operators, Assignment Operators, Comparison Operators, Logical Operators and Bitwise Operators in detail with examples. | 4 | 1 | 1 | 1,2 |
| b) | Write a Python program to check the validity of a password given by the user.<br>The Password should satisfy the following criteria:<br>1. Contain at least 1 letter between a and z<br>2. Contain at least 1 number between 0 and 9<br>3. Contain at least 1 letter between A and Z<br>4. Contain at least 1 character from $, #, @<br>5. Minimum length of password: 6<br>6. Maximum length of password: 12 | 4 | 3 | 1 | 1,2,4 |

*Contd... 2*

**Code No. : 13154 S (G) N/O**

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|---|---|---|---|---|---|
| 12. a) | Write a Python program to solve the Fibonacci sequence using recursion | 4 | 2 | 2 | 1,2 |
| b) | Report the Value for sin(x) up to n terms using the series $\sin(x) = \frac{x}{1!} - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots$ where x is in degrees | 4 | 3 | 2 | 1,2,4 |
| 13. a) | Explain the use of join() and split() string methods with examples. Describe why strings are immutable with an example. | 4 | 2 | 3 | 1,2 |
| b) | Write a program to remove all duplicates from a given list. List = [1,2,3,4,5,6,7,6,5,4] | 4 | 3 | 3 | 1,2,3 |
| 14. a) | What is a Tuple? Write any 5 basic tuple operations with an example. | 4 | 2 | 4 | 1,2 |
| b) | Write a program that has dictionary of names of students and a list of their marks in 4 subjects. Create another dictionary from this dictionary that has name of the students and their total marks. | 4 | 3 | 4 | 1,2,3 |
| 15. a) | Illustrate the different types of control flow statements available in Python with flowcharts | 4 | 2 | 1 | 1,2 |
| b) | Write a python program to print the following pattern:<br>*<br>* *<br>* * *<br>* * * *<br>* * * * * | 4 | 3 | 2 | 1,2,3 |
| 16. a) | Write Python program that accepts a sentence and calculate the number of words, digits, uppercase letters and lowercase letters. | 4 | 3 | 3 | 1,2 |
| b) | Discuss the following dictionary methods with an example.<br>a) get() b) keys() c) pop() d) update() e) values() f) items() | 4 | 2 | 4 | 1,2 |
| 17. | Answer any ***two*** of the following: | | | | |
| a) | Write a Python program to check if a 3 digit number is Armstrong number or not. | 4 | 3 | 1 | 1,2 |
| b) | Find the area and perimeter of a circle using functions. Prompt the user for input. | 4 | 2 | 2 | 1,2 |
| c) | What are the different operations that can be performed on a list? Explain with examples. | 4 | 1 | 3 | 1,2 |

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

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|---|---|---|
| i) | Blooms Taxonomy Level – 1 | 20% |
| ii) | Blooms Taxonomy Level – 2 | 35% |
| iii) | Blooms Taxonomy Level – 3 & 4 | 45% |

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