

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

THIRD SEMESTER B.TECH DEGREE EXAMINATION (Regular), DECEMBER 2022**(2020 SCHEME)****Course Code : 20CST283****Course Name: Python for Machine Learning****Max. Marks : 100****Duration: 3 Hours****PART A*****(Answer all questions. Each question carries 3 marks)***

1. Write a program that prompts the user to enter the mass in kilograms (kg) and the force in Newton's (N). Calculate the acceleration using the formula ($F = m \times a$) and display the result.
2. How Python works in interpreting a program?
3. What is the output produced by the print() statement of the following code?

```
def inc_by_two(x):  
    x = x + 2  
    return x  
x = 10  
inc_by_two(x)  
print("x = ", x)
```
4. Write the outputs of the following loops:
 - i. for count in range(1, 6, 2):
print(count, end = " ")
 - ii. for count in range(6, 1, -1):
print(count, end = " ")
5. Assume that the variable data refers to the list [5, 3, 7]. Write the values of the following expressions:
 - i. data[2]
 - ii. data[-1]
 - iii. data[0:2]
 - iv. 0 in data
 - v. data + [2, 10, 5]
 - vi. tuple(data)
6. Consider the tuple (12, 7, 38, 56, 78). Write a program to print another tuple whose values are even numbers in the given tuple.
7. Create a class Rectangle with a constructor to initialize the object values and a member function area() to compute the area of the rectangle.
8. List any three exception classes in python used for exception handling mechanism.
9. Differentiate between a Python list and a NumPy array?
10. Write a python program to read a text file, copy the content to another file after removing the blank lines.

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. a) Let $x = 4.66$.
Write the values of the following expressions:
- a. `round(x)`
 - b. `int(x)` (5)
 - c. `x//2`
 - d. `x/2`
 - e. `x+3**2`
- b) List the different phases of the waterfall model of software development process, and explain the process with a neat diagram and an example. (9)

OR

12. a) Write a program that prompts the user to enter angle in degrees and convert the angle in degrees to radians. (5)
- b) List and explain the different types of operators in Python. (9)

MODULE II

13. a) Write a function called `convert_to_days()` that prompt the user to input number of hours, minutes, and seconds. The function `convert_to_days()` should convert the hours, minutes, and seconds to days and print the number of days. (7)
- b) Write a menu driven program to calculate the area of a circle, triangle, rectangle and square. Use separate function to implement each operation. (7)

OR

14. a) Write a program to compute nPr . Use a recursive function `fact()` to find the factorial. (7)
- b) Write a Python program to check the validity of a password given by the user. The Password should satisfy the following criteria:
- i. Contains at least one letter between a and z
 - ii. Contains at least one number between 0 and 9 (7)
 - iii. Contains at least one letter between A and Z
 - iv. Contains at least one special character from \$, #
 - v. Minimum length of password: 6

MODULE III

15. a) Write a program to remove all duplicate elements from a list and display the result. (7)
- b) A bookshop details contains the Title of the book and Number of copies of each title. As books are added to the shop, the number of copies to each should increase and as books are sold, the number (7)

of copies in each should decrease. Implement this scenario using dictionary data type in Python.

OR

16. a) Marks of students for an exam is stored as a list. Create two list of marks from this list as passed and failed, less than 50% is considered as failed. Also find the number of passed and failed students, average marks of passed students, mark of top scorer and mark of lowest scorer. (8)
- b) Explain any four Set operations in python with examples. (6)

MODULE IV

17. a) Explain inheritance and different forms of inheritance. How they are implemented in Python? (9)
- b) Write a Python program to create a class called as Complex and implement add() method to add two complex numbers. Display the result by overloading the + Operator. (5)

OR

18. a) Distinguish between function overloading and operator overloading with suitable examples. (6)
- b) Create a Stud class with roll no, name and mark as data items and member function to read and display the data. Create another class Percentage with data to store percentage and a member function to display the percentage. Create a Percentage class object. Read the students details and also print the student's data including the percentage using the Percentage class object. (8)

MODULE V

19. a) Write a Python program to store lines of text into a file. Read the file and display only the palindrome words in the file. (8)
- b) List and explain any 3 methods of os and sys module. (6)

OR

20. Consider a CSV file salesData.csv with following columns(month_no, item_1, item_2, item_3, sales_units, total_profit) of n students and generate data for the CSV file. Write python program to do the following using pandas and matplotlib. (14)
- a) Read and display the content of stud.csv file
- b) Display the total profit of all months and show line plot X label as month number and Y label as sold units.
- c) Display the item_2 and item_3 sales unit data using bar chart.
- d) Display the total profit of each month and show it using the histogram.
