Hall Ticket No | | | | | | | | | | | Question Paper Code: ACSC01

INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)

B.Tech I Semester End Examinations (Regular) - July, 2021

Regulation: UG-20

PYTHON PROGRAMMING

Time: 3 Hours **(COMMON TO ALL BRANCHES)** **Max Marks: 70**

Answer all questions in Module I and II
Answer ONE out of two questions from Modules III, IV and V
All questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. (a) Describe arithmetic operators, assignment operators, comparison operators, logical operators and bitwise operators in Python with examples. **[7M]**

   (b) Write a Python program to print the following.
   i) The first line contains the biggest of the two numbers.
   ii) The second line contains the sum of the two numbers.
   iii) The third line contains the product of the two numbers. **[7M]**

MODULE – II

2. (a) Explain the decision making statements and loops in Python. **[7M]**

   (b) Read the marks of a student in four subjects. Then calculate the total and aggregate, and display the grade obtained by the student.
   (i) If the student scores an aggregate greater than 75%, then the grade is distinction.
   (ii) If aggregate is 60 >= and < 75, then the grade is first division.
   (iii) If aggregate is 50 >= and < 60, then the grade is second division.
   (iv) If aggregate is 40 >= and < 50, then the grade is third division.
   (v) Else the grade is fail **[7M]**

MODULE – III

3. (a) Discuss the relation between tuples and lists, tuples and dictionaries in detail.Explain the functions related to tuple and list. **[7M]**

   (b) Given the participant's score sheet for your College Sports Day, you are required to find the runner-up score.
   You are given scores. Store them in a list and find the score of the runner-up.
   Hint : Given list is [10,3,5,6,10,6].
   The maximum score is 10, second maximum is 6. Hence, we print 6 as the runner-up score. **[7M]**

4. (a) Describe the functions related to dictionary with examples. **[7M]**

   (b) The autonomous college system will read in a dictionary containing key/value pairs of Rollno:[marks] for a list of students. When the parent visits the college and ask the marks of the student by giving rollno, show the marks and also find the average marks up to 2 decimal places.
   Hint: Suppose Roll:No: Marks key:value pairs are 20951a0102:[52,31,45], 20951a0104:[12,22,54], 20951a0104:[32,72,14]

   [7M]

MODULE – IV

5. (a) What is a recursive function? Explain different types of arguments used in user defined functions. **[7M]**

   (b) Consider the below series:
   1, 2, 1, 3, 2, 5, 3, 7, 5, 11, 8, 13, 13, 17…..
   This series is a mixture of 2 series. The odd terms in this series form a Fibonacci series and all the even terms are the prime numbers in ascending order. Write a function to find the Nth term in this series.The value N in a positive integer that should be read from STDIN. The Nth term that is calculated by the program should be written to STDOUT Other than the value of Nth term , no other characters / string or message should be written to STDOUT.
   Hint: case- 1 when N:14, the 14th term in the series is 17 So only the value 17 should be printed to STDOUT case - 2 when N:15, the 15th term in the series is 21 So only the value 21 should be printed to STDOUT **[7M]**

6. (a) Discuss string functions used to access string elements. Also explain the string operations. **[7M]**

   (b) Write Python program to sort words in a sentence in decreasing order of their length. Display the sorted words along with their length. **[7M]**

MODULE – V

7. (a) Write Python program to simulate a bank account with support for deposit money, withdraw money and show balance operations. **[7M]**

   (b) Write a Python program to implement the inheritance concept shown in the scenario of Figure 1.

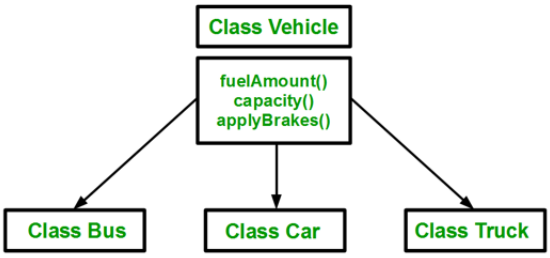

Figure 1

[7M]

8. (a) Discuss the object oriented features and explain public and private data members with examples. **[7M]**

   (b) Define a class named as circle. Use a class variable to define the value of constant PI. Use this class variable to calculate area and circumference of a circle with specified radius? **[7M]**