E –11451

Register No. | | | | | | | | |

BE/BTech Degree Examination November 2021

Fifth Semester

Common to Civil, Mechanical, Automobile, MTS, EEE, EIE, Chemical and Food Technology

18ITO01 – PYTHON PROGRAMMING

(Regulations 2018)

Time: Three hours Maximum: 100 marks

Answer all Questions

Part – A (10 × 2 = 20 marks)

1. How can you extract a substring from a given string? [CO1,K2]
2. Python variables do not have specific types. Justify this statement with the help of an example [CO1,K2]
3. Write a Python program to multiply all the items in a list. [CO2,K3]
4. Differentiate between list and dictionary. [CO2,K2]
5. State the purpose of following string functions with example [CO3,K2]
   (i) find( ) (ii) isapha( )
6. Write a program to convert the given character into ASCII code using inbuilt function. [CO3,K3]
7. Can a function call another function? Justify your answer with example. [CO4,K3]
8. What is meant by recursive function? [CO4,K1]
9. Differentiate between public and private variables. [CO5,K2]
10. What is meant by data abstraction and data hiding? [CO5,K1]

Part – B (5 × 16 = 80 marks)

11. a. Write a program to calculate parking charges of a vehicle. Enter the type of vehicle as a character (like c for car, b for bus, v for van, s for scooter, y for cycle and t for truck) and number of hours, Read the hours and minutes when the vehicle enters the parking lot. When the vehicle is leaving, enter its leaving time. Calculate the difference between the two timings to calculate the number of hours and minutes for which the vehicle was parked. Calculate the charges based on the following rules and then display the result. (16) [CO1,K3]

Vehicle Name	Rate till 3 hours (Rs.)	Rate from 3 to 6 hours (Rs.)	Rate after 6 hours (Rs.)
Truck/Bus/Van	20	25	30
Car	10	15	20
Scooter/Cycle	5	10	15

(OR)

b. i) Write a python program to display the prime numbers between 100 and 500. (8) [CO1,K3]

ii) Write a program to display the grade of a student. Get marks in five subjects and calculate the grade based on the average marks as given below. (8) [CO1,K3]

Average mark	Grade
>= 90 and <= 100	A
>= 70 and < 90	B
>= 50 and < 70	C
< 50	Fail

12. a. i) Write a python code to get 'n' elements in a list and perform the following operations. (8) [CO2,K3]

i) Insert an element at 2nd position

ii) Delete a specified element

iii) Reverse the list

iv) print the odd indexed element

ii) Write a python program to create a dictionary and perform the following operations. (8) [CO2,K3]

i) Display only keys

ii) Display only values

iii) Add an element into an existing dictionary

iv) Remove an element

(OR)

b. i) Write a python program to get a list of 'n' elements and remove duplicates form the list. After removing the duplicate, print the list in reverse order. (8) [CO2,K3]

ii) Write a python program to perform the following. (8) [CO2,K3]

i) Convert a tuple to a string

ii) Add an item into a tuple

iii) Find the repeated items of a tuple

iv) Convert a tuple to a list

13. a. i) Write a python program to get the names of the 10 students in a class. Print the names of the students that start with a specified character. (8) [CO3,K3]

Sample Input: 1. Amy 2. Georgia 3. Emma 4. Charlotte 5. Grace 6. Sophie 7. Abigail 8. Hannah 9. Emily 10. Alice
Enter the character : " A"
Sample Output : 1. Amy 2. Abigail 3. Alice

ii) Write a python program that matches a word at the beginning of a string and end of string with optimal punctuation. (8) [CO3,K3]

(OR)

b. i) Write a Python program to get a string from user. Display a string made of the first 2 and the last 2 chars of the given string. If the string length is less than 2, display the given string. (8) [CO3,K3]

Sample String : 'Python resource'
Expected Result : 'Pyce'
Sample String : 'PI'
Expected Result : 'PI'

ii) Write a python code to perfrom following string operations. (8) [CO3,K3]

i) Length of a string
ii) Print the character frequency of the given string
iii) Merge the two given strings
iv) Remove the n^{th} index character form a nonempty string

14. a. State the different types of arguments that can be passed in a python function. Demonstrate with suitable examples for each type. (16) [CO4,K3]

(OR)

b. i) Write a python program to create and import a module. (8) [CO4,K3]

ii) Write a python recursive function to generate fibonacci series with 'n' values. (8) [CO4,K3]

15. a. Create a class named 'Employee' with attributes name, employee id, age, gender and gross salary. Calculate the net salary by using the following formula. (16) [CO5,K3]

Net salary = gross salary – HRA – PF
HRA = 10% gross salary
PF = 20% of gross salary
Use constructors and methods to perform the above operations. Write a python to implement.

(OR)

b. i) Write a python code to perform the following operations in a NumPy array. (8) [CO5,K3]

i) Test whether any of the elements of a given array is non zero
ii) Create an array of 10 ones
iii) Create an array of the integers from 30 to 70
iv) Generate an array with 15 random members

ii) Write a python code to perform the following (8) [CO5,K3]

i) Plot two or more lines on same plot with suitable legends of each line
ii) Plot scatter plot

Bloom's Taxonomy Level	Remembering (K1)	Understanding (K2)	Applying (K3)	Analysing (K4)	Evaluating (K5)	Creating (K6)
Percentage	2	6	92	-	-	-