



Roll No:

BTECH
(SEM IV) THEORY EXAMINATION 2023-24
PYTHON PROGRAMMING

TIME: 3 HRS

M.MARKS: 70

Note: 1. Attempt all Sections. If require any missing data, then choose suitably.

SECTION A

1. Attempt *all* questions in brief.

$$2 \times 7 = 14$$

a.	Give difference between <code>=</code> and <code>is</code> operator.
b.	How we print the character of a given ASCII value in Python?
c.	Can you use <code>else</code> with a <code>for</code> loop? If so, when is it executed?
d.	What will be the output of the following Python code? <pre>l= [1, 0, 0, 2, 'hi', '', {}] print(list(filter(bool, l)))</pre>
e.	Describe the purpose of the <code>split()</code> method in string manipulation.
f.	What does the <code>readline()</code> function return when it reaches the end of a file?
g.	Which function is used to create identity matrix in NumPy?

SECTION B

2. Attempt any *three* of the following:

$$7 \times 3 = 21$$

a.	Explain the concept of dynamic typing in Python with an example.
b.	Explain how to define a list in Python. Write a Python program to remove duplicates from a list and print the resulting list.
c.	Explain the concept of functions in Python. Write a function that takes a list of numbers and returns the sum of all the numbers in the list.
d.	Write a Python program to read a file named "ABC.txt" and count the number of lines, words, and characters in the file.
e.	Explain the basic usage of matplotlib for plotting graphs. Write a Python program to plot a simple line graph showing the relationship between $x = [1, 2, 3, 4, 5]$ and $y = [1, 4, 9, 16, 25]$.

SECTION C

3. Attempt any *one* part of the following:

$$7 \times 1 = 7$$

(a)	Explain for and while loops used in Python with appropriate example.
(b)	Write a Python Program to find the LCM of two numbers.

4. Attempt any *one* part of the following:

$$7x; = 7$$

(a)	<p>Write a program takes two strings and checks common letters in both the strings.</p> <p>Enter first string: Hari</p> <p>Enter second string: Hale</p> <p>The common letters are:</p> <p>H</p> <p>a</p>
(b)	<p>Write a Python Program to find the sum all the items in a dictionary.</p> <p>For example if d={'A':100,'B':540,'C':239} then output should be 879.</p>



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5. Attempt any *one* part of the following:

7 x 1 = 7

- | | |
|-----|--|
| (a) | Explain the concept of a set in Python and its characteristics. How elements are added or removed in set. |
| (b) | Explain how lambda functions can be used within a list comprehension. Write a Python program that uses a lambda function within a list comprehension to convert a list of temperatures in Celsius to Fahrenheit. |

6. Attempt any *one* part of the following:

7 x 1 = 7

- | | |
|-----|--|
| (a) | Explain different file opening modes also write a Python Program to read a file and capitalize the first letter of every word in the file. |
| (b) | What do you mean by generators in Python? How it is created in Python? |

7. Attempt any *one* part of the following:

7 x 1 = 7

- | | |
|-----|--|
| (a) | Describe how to generate random numbers using NumPy. Write a Python program to create an array of 5 random integers between 10 and 50. |
| (b) | Explain the concept of DataFrame in pandas. Write a Python program to create a DataFrame from a dictionary and print it. |

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