Subject Code: KNC402

PAPER ID-411080

Roll No: | | | | | | | | | | | | | |

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

TIME: 3 HRS **M.MARKS: 100**

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

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Differentiate between = and == operator.	02	1
b.	Which operator is used to calculate the power of a number?	02	1

c.	Predict the output
	l= ['1', '2', "hello"]
	l1= []
	for x in l:
	
	if(x.isdigit()):
	l1.append(x)
	print(l1)
		02	2

d.	Differentiate between for and while loops in Python.	02	2
e.	How Tuples are unpacked?	02	3
f.	Differentiate between mutable and immutable sequences.	02	3
g.	How functions and modules are imported in Python?	02	4
h.	Discuss class and object.	02	4
i.	Differentiate between linear and binary search.	02	5
j.	Discuss the time complexity of selection and merge sort.	02	5

SECTION B

2. Attempt any *three* of the following: **3 x 10 = 30**

Q no.	Question	Marks	CO
a.	List and describe three popular Python Integrated Development Environments (IDEs). For each IDE, explain at least two features that make it suitable for Python development.	10	1
b.	Discuss list Comprehension. Write a Python program to check whether given number is even or odd using list comprehension.	10	2
c.	Demonstrate how to find the length of a string and perform concatenation and repetition operations. Provide an example code for each operation.	0	3
d.	Create a Python module with a simple function, and demonstrate how to import and use that function in another script.	10	4
e.	Write a Python function to merge two sorted lists into a single sorted list.	10	5

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SECTION C

3. Attempt any *one* part of the following: 1 x 10 = 10

Q no.	Question	Marks	CO
a.	Write a Python program to calculate area and circumference of a circle.	10	1
b.	Explain any four operators used in Python.	10	1

4. Attempt any *one* part of the following: 1 x 10 = 10

Q no.	Question	Marks	CO
a.	Write a program that uses nested if statements to check if a person is eligible to vote and if they are a senior citizen (age >= 65).	10	2
b.	Discuss break, continue and pass statements in loop with example.	10	2

5. Attempt any *one* part of the following: 1 x 10 = 10

Q no.	Question	Marks	CO
a.	Explain what tuples are and demonstrate tuple unpacking with an example. Also differentiate between List and Tuple.	10	3
b.		10	3

6. Attempt any *one* part of the following: 1 x 10 = 10

Q no.	Question	Marks	CO
a.	Define Abstract Data Types (ADTs) and give an example of an ADT in Python with its basic operations.	10	4
b.	Write a Python function that handles multiple exceptions (e.g., ZeroDivisionError and ValueError) and prints appropriate messages for each.	10	4

7. Attempt any *one* part of the following: 1 x 10 = 10

Q no.	Question	Marks	CO
a.	Implement a simple linear search algorithm and explain how it works. Analyze its time complexity	10	5
b.	Write a recursive function to compute the nth Fibonacci number. Explain the base cases and recursive case.	10	5