Reg. No.															

Question Paper Code	13549

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Six Semester

Computer Science and Engineering (AIML)

(Common to Computer Science and Engineering (IOT) & Artificial Intelligence and Data Science)

20AMEL901 - PYTHON ADVANCED

Regulations - 2020

Duration: 3 Hours Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Python is commonly used in: (a) Web development (b) Data science (c) Machine learning (d) All of the above	1	K1	CO1
2.	Which of the following is an immutable data type? (a) List (b) Dictionary (c) Tuple (d) Set	1	K1	CO1
3.	What are the key differences between lists and tuples in Python? (a) Tuples are mutable, lists are not. (b) Lists are mutable, tuples are not. (c) Both are immutable. (d) Both are mutable	1	K1	CO2
4.	What will print("Python"[2:5] output? (a)"tho" (b) "Pyt" (c)"yth" (d)"hon"	1	K1	CO2
5.	What keyword is used to define a function in Python? (a) func (b) define (c) def (d) function	1	K1	CO3
6.	Which keyword is used to handle exceptions in Python? (a) catch (b) handle (c) try (d) except	1	K1	CO3
7.	Which of the following modes is used to open a file for writing in Python? (a) r (b) w (c) rw (d) wr	1	K1	CO4
8.	Which function is used to establish a connection to a remote server in socket programming? (a) bind() (b) connect() (c) listen() (d) accept()	1	K1	CO4
9.	Which module in Python is used to work with regular expressions? (a) regex (b) re (c) regexp (d) regexlib	1	K1	CO5
10.	Which method waits for a thread to finish execution? (a) wait() (b) join() (c) stop() (d) close	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	List the steps to check if a string is a palindrome in Python.	2	K1	CO1
12.	Recall the basic data types available in Python.	2	K1	CO1
13.	Interpret the output of [x * 2 for x in range (3)].	2	K2	CO2
14.	List three differences between lists and tuples.	2	K1	CO2
15.	Name the purpose of lambda expressions in Python.	2	K1	CO3
16.	Compare the use of *args and **kwargs in function parameters.	2	K2	CO3
17.	Recall the purpose of the __init__ method in a Python class.	2	K1	CO4
18.	State the syntax to open a file in Python and list the different file modes available.	2	K1	CO4
19.	Name the purpose of the re.findall() function in Python.	2	K1	CO5
20.	Define the subprocess module.	2	K1	CO5

21.		Summarize how the Global Interpreter Lock (GIL) affects Python threads.	*2*	*K2*	*CO6*
22.		Give an example of how to remove extra spaces using regex.	*2*	*K1*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	(i)	Describe the purpose of the pass**,** range, and yield statements in Python, and demonstrate their use through appropriate examples**.**	*6*	*K2*	*CO1*
		(ii)	Explain how a loop can be used to calculate the factorial of a number and implement it in Python.	*5*	*K2*	*CO1*
			OR			
	b)	(i)	Interpret how to determine whether a given year is a leap year and implement it in Python.	*6*	*K2*	*CO1*
		(ii)	Explain the concept of an Armstrong number and demonstrate how to check it using Python.	*5*	*K2*	*CO1*
24.	a)	(i)	Differentiate between lists and tuples in Python and exemplify with code.	*6*	*K3*	*CO2*
		(ii)	Identify how nested list comprehension works with an example program.	*5*	*K3*	*CO2*
			OR			
	b)	(i)	Differentiate map(), filter(), and list comprehension in Python with examples.	*6*	*K3*	*CO2*
		(ii)	Develop python a program to check whether a given string is a palindrome.	*5*	*K3*	*CO2*
25.	a)		Write a Python function that takes two numbers as input and returns their sum, difference, product, and quotient.	*11*	*K3*	*CO3*
			OR			
	b)	(i)	Develop a Python function to check whether a given number is prime or not.	*5*	*K3*	*CO3*
		(ii)	Write a recursive function in Python to calculate the factorial of a given number.	*6*	*K3*	*CO3*
26.	a)		Develop the concept of polymorphism with method overriding and method overloading with examples.	*11*	*K3*	*CO4*
			OR			
	b)		Develop a Python program that showcases different types of inheritance (single, multiple, multilevel, hierarchical, and hybrid) with examples.	*11*	*K3*	*CO4*
27.	a)		Describe the different types of regular expression pattern characters (e.g., \d, \w, \s, etc.). Write a program to validate a date in dd-mm-yyyy format.	*11*	*K2*	*CO5*
			OR			
	b)		Explain the role of the re module in Python. Write a program to extract all email addresses from a given paragraph using regular expressions.	*11*	*K2*	*CO5*
28.	a)		Explain the purpose of character sets (e.g., [a-z], [A-Z0-9]) in regular expressions. Write a program to validate a strong password containing uppercase, lowercase, numbers, and special characters.	*11*	*K2*	*CO6*
			OR			
	b)		Differentiate between greedy and non-greedy matching with examples. Write a program to illustrate both behaviors.	*11*	*K2*	*CO6*