Semester: III	Department of Electronics and Communication Engineering	AY: 2026-27
Course Code: 1BEC305	Course Name: Python Programming	

Question Bank

Q.	Module-01	M	L	C
1.	Explain the different data types in Python (integer, floating-point and string) with examples. Also explain string concatenation and string replication.	6	L2	CO1
2.	Explain comparison operators and Boolean operators (and, or, not) with truth tables. Illustrate how Boolean and comparison operators can be mixed in an expression.	7	L2	CO1
3.	Explain the flow control statements if, elif, else, while, break and continue in Python with syntax, flowchart and suitable examples.	10	L2	CO1
4.	Write a Python program to print the numbers from 1 to 50 such that multiples of 3 print “Fizz”, multiples of 5 print “Buzz” and multiples of both print “FizzBuzz”.	5	L3	CO1
5.	Explain the for loop with the range() function (start, stop and step arguments). Write Python programs to find the sum of the first 100 natural numbers using (i) for loop and (ii) while loop.	8	L3	CO1
6.	Define a function. Explain def statements with parameters, return values and return statements, and the None value, with examples.	8	L2	CO1
7.	Explain local and global scope in Python with the rules that govern them. Illustrate the use of the global statement with an example.	8	L2	CO1
8.	What is exception handling? Explain try and except statements with a Python program that handles ZeroDivisionError and ValueError.	7	L3	CO1
9.	Develop a Python program for the “Guess the Number” game and explain each part of the program (dissecting the program).	9	L3	CO1
10.	Explain importing modules (import, from-import), ending a program early with sys.exit(), and keyword arguments of print() (sep and end) with examples.	6	L2	CO1
Q.	**Module-02**	**M**	**L**	**C**
11.	Explain the list data type with indexing, negative indices, slicing, len(), del statement, list concatenation and list replication, with examples.	8	L2	CO2
12.	Explain the list methods index(), append(), insert(), remove(), sort() and reverse() with examples.	8	L2	CO2
13.	Differentiate between lists and tuples. Explain mutable and immutable data types and augmented assignment operators with examples.	6	L2	CO2

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14.	Explain working with lists: using for loops with lists, the in and not in operators, multiple assignment and the swap trick, and the random.choice() and random.shuffle() functions.	7	L2	CO2
15.	Write a Python program to read a list of numbers and display the sum, average, largest and smallest elements without using built-in functions.	5	L3	CO2
16.	Explain string manipulation: string literals, escape characters, raw strings, multiline strings, indexing, slicing, and the in and not in operators with examples.	8	L2	CO2
17.	Explain the following useful string methods with examples: upper(), lower(), isupper(), islower(), isalpha(), isalnum(), isdecimal(), startswith(), endswith(), join(), split(), rjust(), ljust(), center(), strip().	10	L2	CO2
18.	Explain the dictionary data type. Discuss the methods keys(), values(), items(), get() and setdefault() with examples.	8	L2	CO2
19.	Write a Python program to count the frequency of each character in a given string using a dictionary and display the result using pprint().	5	L3	CO2
20.	Using data structures to model real-world things, explain how a tic-tac-toe board can be represented using a dictionary. Also explain nested dictionaries and lists with an example.	9	L3	CO2
Q.	**Module-03**	**M**	**L**	**C**
21.	Write a Python program to find a phone number pattern in a text without using regular expressions, and explain the limitations of this approach.	7	L3	CO3
22.	Explain creating Regex objects using re.compile(), the search() method, Match objects and group(), grouping with parentheses and matching multiple groups with the pipe character.	8	L2	CO3
23.	Explain optional matching (?), zero or more (*), one or more (+), specific repetitions ({}) and greedy versus non-greedy matching with examples.	8	L2	CO3
24.	Explain the findall() method with and without groups. Differentiate between search() and findall() with examples.	6	L2	CO3
25.	Explain common character classes, making your own character classes, and the caret and dollar sign characters with examples.	7	L2	CO3
26.	Explain the wildcard character (dot-star) and the re.DOTALL and re.IGNORECASE options. Give a review of regex symbols.	7	L2	CO3
27.	Write a Python program using regular expressions to extract all e-mail addresses and phone numbers from a given text.	5	L3	CO3
28.	Explain files and file paths: the os.path.join(), os.getcwd(), os.chdir() and os.makedirs() functions, absolute and relative paths, and the os.path module functions.	10	L2	CO3

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29.	Explain the file reading/writing process with open(), read(), readlines(), write(), append mode and close(). Write a program to copy the contents of one file to another.	8	L3	CO3
30.	Explain saving variables with the shelve module and with the pprint.pformat() function, with suitable examples.	7	L2	CO3
Q.	**Module-04**	**M**	**L**	**C**
31.	Define a class and an object. Explain programmer-defined types and attributes with the Point class example.	6	L2	CO4
32.	Write a Python class Rectangle with attributes width, height and corner. Write functions to find the centre of the rectangle and to return an instance as a return value.	8	L3	CO4
33.	Explain that objects are mutable. Explain copying with the copy module, differentiating between shallow copy and deep copy with examples.	8	L2	CO4
34.	Define the class Time. Write a pure function add_time() and a modifier increment() for the Time class and explain the difference between them.	10	L3	CO4
35.	Differentiate between pure functions and modifiers. Explain prototyping versus planning with an example.	7	L2	CO4
36.	Explain the object-oriented features of Python. Convert the function print_time() into a method of the class Time.	7	L2	CO4
37.	Explain the __init__ method and the __str__ method with a suitable example.	8	L2	CO4
38.	Explain operator overloading with __add__() and __radd__() methods for the Time class with an example.	8	L3	CO4
39.	Explain type-based dispatch and polymorphism in Python with suitable examples.	8	L3	CO4
40.	Write a Python program to define a class Point with __init__, __str__ and __add__ methods, create two points and display their sum.	5	L3	CO4
Q.	**Module-05**	**M**	**L**	**C**
41.	Explain the HTTP protocol. Write a Python program for the world's simplest web browser using sockets.	8	L3	CO5
42.	Write a Python program to retrieve an image over HTTP using sockets and save it to a file.	5	L3	CO5
43.	Explain how to retrieve web pages with urllib. Write a program to read a web page and count the number of characters in it.	6	L3	CO5
44.	What is XML? Explain parsing XML with ElementTree and looping through nodes with a Python program.	8	L3	CO5
45.	What is JSON? Explain parsing JSON using the json module and compare JSON with XML.	7	L2	CO5

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46.	What is a database? Explain database concepts, the Database Browser for SQLite and creating a database table using Python.	7	L2	CO5
47.	Explain the SQL commands INSERT, SELECT, UPDATE, DELETE and ORDER BY with examples.	8	L2	CO5
48.	Write a Python program using SQLite to count the number of e-mail messages per organization and store the result in a table Counts(org, count).	10	L3	CO5
49.	Explain basic data modeling and the three kinds of keys (primary, logical and foreign) with an example.	8	L2	CO5
50.	Explain programming with multiple tables and the JOIN operation in SQL with an example.	7	L3	CO5

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