UPES

End Semester Examination, April-May 2024

Course: Data Structure in Biomedical and Engineering

Semester: II

Program: B.Tech (Biomedical Engineering)   **Duration: 3 Hours**

Course Code: HSBE1003   **Max. Marks: 100**

Instructions: Read Questions Carefully

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q1	What is the output of the following Python code? print("Learn\nPython") A) LearnPython B) Learn Python C) Learn Python D) Error	1.5	CO3
Q2	Which character is used to start a single-line comment in Python? A) // B) /* C) # D) <!--	1.5	CO1
Q3	What is the output of the following code snippet? name = "Alice" print(f"Hello {name}!") A) Hello name! B) Hello {Alice}! C) Hello Alice! D) SyntaxError	1.5	CO2
Q4	Which escape sequence character is used to represent a tab? A) \n B) \t C) \r D) \l	1.5	CO2

Q5	Which data type would be best for storing someone's age in Python? A) int B) string C) float D) char	**1.5**	**CO3**
Q6	What is the correct operator to check if two variables, a and b, are equal? A) = B) == C) === D) !=	**1.5**	**CO1**
Q7	Which function can you use to find the type of an object in Python? A) type() B) id() C) len() D) print()	**1.5**	**CO2**
Q8	What is the result of the following Python code? python list1 = [1, 2, 3] list2 = [1, 2, 3] print(list1 is list2) A) True B) False C) 1 D) Error	**1.5**	**CO2**
Q9	Which operator is used to check membership in Python? A) is B) in C) exists D) contains	**1.5**	**CO3**
Q10	What is the correct naming convention for a variable in Python that stores the number of books? A) numberofbooks B) numberOfBooks C) number_of_books D) Numberofbooks	**1.5**	**CO1**

Q11	What will happen if you forget to indent the following Python code? python if True: print("True") A) It prints "True" B) It does nothing C) It raises an Indentation Error D) It exits the program	1.5	CO2
Q12	Which keyword is used to define a function in Python? A) func B) define C) def D) function	1.5	CO2

Q13	Which function converts a string to an integer? A) int() B) strToInt() C) convertToInt() D) toInteger()	1.5	CO2
Q14	How do you define a function in Python that takes no arguments and does nothing? A) def my_function(): pass B) function my_function(): continue C) def my_function(): none D) function(): pass	1.5	CO1
Q15	Which operator is used for floor division in Python? A) / B) // C) % D) **	1.5	CO5
Q16	What does the following statement do? x = 5 A) Compares x to 5 B) Assigns the value 5 to x C) Multiplies x by 5 D) Divides x by 5	1.5	CO2
Q17	How do you define a function in Python that takes no arguments and does nothing? A) def my_function(): pass B) function my_function(): continue	1.5	CO1

	C) def my_function(): none D) function(): pass		
Q18	Which statement is used to include an else block after a loop? A) else B) finally C) except D) elseif	**1.5**	**CO3**

Q19	What is the output of the following code?
	python
	for i in range(5):
	  if i == 3:
	    break
	  print(i)
	A) 0 1 2
	B) 0 1 2 3
	C) 0 1 2 3 4
	D) 1 2 3 4
		1.5	**CO3**

Q20	Which function would you use to generate a sequence of numbers from 0 to 5 in Python? A) list(0, 5) B) range(6) C) numbers(0, 5) D) generate(0, 5)	**1.5**	**CO2**
Section B **(4Qx5M=20 Marks)**		
Q 1	Define a data structure.	**5**	**CO4**
Q2	Explain the difference between linear and non-linear data structures.	**5**	**CO2**
Q3	Describe the properties and typical use cases for lists and tuples in Python	**5**	**CO2**
Q4	Explain how dictionaries in Python are used to store data	**5**	**CO1**
Section C **(2Qx15M=30 Marks)**		
Q1	a) Write a Python program that prompts the user to enter their name and age, then prints a message that states the user's name and age. b) Develop a Python program that takes two integers as input and prints the result of adding, subtracting, multiplying, and dividing them. Use arithmetic operators. c) Write a Python script that asks the user for a number and uses a decision-making statement to print whether the number is positive, negative, or zero	**15** **(5+5+5)**	**CO5**

Q2	a) Create a Python function that demonstrates the use of the range function in a for loop to print all even numbers between 1 and 10. b) Write a Python program that uses input statements to gather a user's first and last name, then uses string formatting to print a formal greeting. c) Create a Python function that uses nested if statements to determine and print whether a given number is high (greater than 50), medium (between 10 and 50), or low (less than or equal to 10)	15 (5+5+5)	CO5

Section D
(2Qx10M=20 Marks)

Q1	Difference between Stack, Queues, linked list.	10	CO1
Q 2	Can you demonstrate how to store the data elements 10, 11, 19, 12, 23, 25, 32, and 12 in a linked list, an array, and a stack? Please provide diagrams to visually represent each data structure	10	CO3