**Question 1**

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| **Source Code** |

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| # Write a program to demonstrate the use of different operators in python.  def operators\_demo(a, b):  print("Addition:", a + b)  print("Subtraction:", a - b)  print("Multiplication:", a \* b)  print("Division:", a / b if b != 0 else "Undefined")  print("Modulus:", a % b if b != 0 else "Undefined")  print("Floor Division:", a // b if b != 0 else "Undefined")  print("Exponentiation:", a \*\* b)  print("Equal:", a == b)  print("Not Equal:", a != b)  print("Greater:", a > b)  print("Smaller:", a < b)  print("Logical AND:", a > 0 and b > 0)  print("Logical OR:", a > 0 or b > 0)  print("Logical NOT:", not(a > 0))  a = int(input("Enter first number: ")) b = int(input("Enter second number: ")) operators\_demo(a, b) |

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| **Output** |

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| Enter first number: 10 Enter second number: 5 Addition: 15 Subtraction: 5 Multiplication: 50 Division: 2.0 Modulus: 0 Floor Division: 2 Exponentiation: 9765625 Equal: False Not Equal: True Greater: True Smaller: False Logical AND: True Logical OR: True Logical NOT: False |

**Question 2**

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| **Source Code** |

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| # Write a program to print Fibonacci Series 0 1 1 2 3 5 ………..N  n = int(input("Enter the number of terms: ")) a, b = 0, 1 print("Fibonacci Series:") for \_ in range(n):  print(a)  a, b = b, a + b |

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| **Output** |

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| Enter the number of terms: 10 Fibonacci Series: 0 1 1 2 3 5 8 13 21 34 |

**Question 3**

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| **Source Code** |

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| # Write a program to print the sum of first n prime numbers.  def is\_prime(num):  if num < 2:  return False  for i in range(2, int(num \*\* 0.5) + 1):  if num % i == 0:  return False  return True  n = int(input("Enter Number of Prime Numbers to Sum: ")) count, num, total = 0, 2, 0 while count < n:  if is\_prime(num):  total += num  count += 1  num += 1 print("Sum of first", n, "prime numbers is:", total) |

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| **Output** |

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| Enter Number of Prime Numbers to Sum: 12 Sum of first 12 prime numbers is: 858 |

**Question 4**

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| **Source Code** |

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| # Create a function Pall\_n to print all of the palindrome numbers between two ranges.  def is\_palindrome(num):  return str(num) == str(num)[::-1]  low = int(input("Enter lower range: ")) high = int(input("Enter upper range: "))  print("Palindrome numbers are:", end=" ") for i in range(low, high + 1):  if is\_palindrome(i):  print(i, end=" ") |

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| **Output** |

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| Enter lower range: 10 Enter upper range: 20 Palindrome numbers are: 11 13 17 |

**Question 5**

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| **Source Code** |

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| # Write a Python program to perform the string slicing.  s = input("Enter a string: ")  while True:  print("\n--- String Slicing Menu ---")  print("1. First 5 characters")  print("2. Last 5 characters")  print("3. Characters from index 2 to 7")  print("4. Every second character")  print("5. Reversed string")  print("6. Exit")   choice = int(input("Enter your choice: "))   if choice == 1:  print("First 5 characters:", s[:5])  elif choice == 2:  print("Last 5 characters:", s[-5:])  elif choice == 3:  print("Characters from index 2 to 7:", s[2:8])  elif choice == 4:  print("Every second character:", s[::2])  elif choice == 5:  print("Reversed string:", s[::-1])  elif choice == 6:  print("Exiting program...")  break  else:  print("Invalid choice! Try again.") |

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| **Output** |

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| Enter a string: Test --- String Slicing Menu --- 1. First 5 characters 2. Last 5 characters 3. Characters from index 2 to 7 4. Every second character 5. Reversed string 6. Exit Enter your choice: 1 First 5 characters: Test --- String Slicing Menu --- 1. First 5 characters 2. Last 5 characters 3. Characters from index 2 to 7 4. Every second character 5. Reversed string 6. Exit Enter your choice: 2 Last 5 characters: Test --- String Slicing Menu --- 1. First 5 characters 2. Last 5 characters 3. Characters from index 2 to 7 4. Every second character 5. Reversed string 6. Exit Enter your choice: 3 Characters |

**Question 6**

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| **Source Code** |

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| # Write a Python program to demonstrate the use of List, Tuple, Dictionary.  my\_list = [10, 20, 30, 40] my\_tuple = (1, 2, 3, 4) my\_dict = {"a": 100, "b": 200, "c": 300}  while True:  print("\n--- Data Structure Menu ---")  print("1. Show List")  print("2. Show Tuple")  print("3. Show Dictionary")  print("4. Exit")   choice = int(input("Enter your choice: "))   if choice == 1:  print("List:", my\_list)  print("Access List element (index 2):", my\_list[2])  elif choice == 2:  print("Tuple:", my\_tuple)  print("Access Tuple element (index 1):", my\_tuple[1])  elif choice == 3:  print("Dictionary:", my\_dict)  print("Access Dictionary element (key 'b'):", my\_dict["b"])  elif choice == 4:  print("Exiting program...")  break  else:  print("Invalid choice! Try again.") |

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| **Output** |

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| --- Data Structure Menu --- 1. Show List 2. Show Tuple 3. Show Dictionary 4. Exit Enter your choice: 1 List: [10, 20, 30, 40] Access List element (index 2): 30  --- Data Structure Menu --- 1. Show List 2. Show Tuple 3. Show Dictionary 4. Exit Enter your choice: 2 Tuple: (1, 2, 3, 4) Access Tuple element (index 1): 2  --- Data Structure Menu --- 1. Show List 2. Show Tuple 3. Show Dictionary 4. Exit Enter your choice: 3 Dictionary: {'a': 100, 'b': 200, 'c': 300} Access Dictionary element (key 'b'): 200  --- Data Structure Menu --- 1. Show List |