

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2024

B.Tech-I Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): L-18B11CI314 (3)

MAX. MARKS: 35

COURSE NAME: Python Programming Essentials

COURSE INSTRUCTORS: Dr. Monika, Dr. Naveen Jaglan, Dr. Ramesh, Mr. Kuntal

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

| Q.No | Question | CO | Marks | | | | |
|---|--|---|--|--|---|-------------------|-----|
| Q1 | <p>Create a GUI window with a checkbox, a button, and a label. When the checkbox is checked, the label will display "Checked". When it is unchecked, the label will display "Unchecked".</p> <ul style="list-style-type: none"> Bind an event to the checkbox to update the label text when the checkbox is checked/unchecked. Define a function that prints "Button Pressed" when the button is clicked. | CO-6 | 5 | | | | |
| Q2 | <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>a) What will be the output after executing the below code?</p> <pre>def foo(text): words = text.split() return {word: words.count(word) for word in set(words)} text = "apple orange apple banana apple orange" print(foo(text))</pre> </td> <td style="width: 50%; vertical-align: top;"> <p>b) What will be the output of below code?</p> <pre>import re pattern = r'^[0-9]' string = 'abc123' result = re.findall(pattern, string) print(result)</pre> </td> </tr> <tr> <td style="vertical-align: top;"> <p>c) What will be the output of below code?</p> <pre>def unique_pairs(lst): return [(lst[i], lst[j]) for i in range(len(lst)) for j in range(i+1, len(lst))] numbers = [1, 2, 3] print(unique_pairs(numbers))</pre> </td> <td style="vertical-align: top;"> <p>d) What will be the output of below code?</p> <pre>import re pattern = r'(\d{3})-(\d{2})-(\d{4})' string = 'My phone number is 123-45-6789.' match = re.search(pattern, string) if match: print("Area code:", match.group(1)) print("Prefix:", match.group(2)) print("Line number:", match.group(3))</pre> </td> </tr> </table> | <p>a) What will be the output after executing the below code?</p> <pre>def foo(text): words = text.split() return {word: words.count(word) for word in set(words)} text = "apple orange apple banana apple orange" print(foo(text))</pre> | <p>b) What will be the output of below code?</p> <pre>import re pattern = r'^[0-9]' string = 'abc123' result = re.findall(pattern, string) print(result)</pre> | <p>c) What will be the output of below code?</p> <pre>def unique_pairs(lst): return [(lst[i], lst[j]) for i in range(len(lst)) for j in range(i+1, len(lst))] numbers = [1, 2, 3] print(unique_pairs(numbers))</pre> | <p>d) What will be the output of below code?</p> <pre>import re pattern = r'(\d{3})-(\d{2})-(\d{4})' string = 'My phone number is 123-45-6789.' match = re.search(pattern, string) if match: print("Area code:", match.group(1)) print("Prefix:", match.group(2)) print("Line number:", match.group(3))</pre> | CO-1 & CO-6 | 1*6 |
| <p>a) What will be the output after executing the below code?</p> <pre>def foo(text): words = text.split() return {word: words.count(word) for word in set(words)} text = "apple orange apple banana apple orange" print(foo(text))</pre> | <p>b) What will be the output of below code?</p> <pre>import re pattern = r'^[0-9]' string = 'abc123' result = re.findall(pattern, string) print(result)</pre> | | | | | | |
| <p>c) What will be the output of below code?</p> <pre>def unique_pairs(lst): return [(lst[i], lst[j]) for i in range(len(lst)) for j in range(i+1, len(lst))] numbers = [1, 2, 3] print(unique_pairs(numbers))</pre> | <p>d) What will be the output of below code?</p> <pre>import re pattern = r'(\d{3})-(\d{2})-(\d{4})' string = 'My phone number is 123-45-6789.' match = re.search(pattern, string) if match: print("Area code:", match.group(1)) print("Prefix:", match.group(2)) print("Line number:", match.group(3))</pre> | | | | | | |

| | | | | |
|----|---|---|--------|--|
| | <p>e) What will be the output?</p> <pre>import re pattern = r'\b[a-zA-Z]+\b' text = 'The quick brown fox' result = re.findall(pattern, text) print(result)</pre> | <p>f) What will be the output of the following code?</p> <pre>def custom_sort(st): return sorted(st, key=lambda x: (x % 2 == 0, x)) numbers = [1, 4, 3, 2, 5, 6] print(custom_sort(numbers))</pre> | | |
| Q3 | Write a Python program to read a text file and count the frequency of each word in the file. Explain how the program handles exceptions during file operations. | CO-4 | 3 | |
| Q4 | <p>a) Explain the concept of decomposition with the help of a real-life example, and how the "divide and conquer" approach aids in solving complex problems efficiently. Use programming examples to illustrate your explanation.</p> <p>b) You are given two lists. Use map() and lambda to create a list of tuples where each tuple contains the corresponding elements of both lists.</p> | CO-3 | 4 2 | |
| Q5 | Write a python code that implements the Bisection Method to find the root of $f(x) = x^3 - 4x^2 + 6x - 24$ within the interval [2, 5] and with a tolerance of $1e-5$. | CO-2 | 4 | |
| Q6 | <p>Design a Student class with the following:</p> <ul style="list-style-type: none"> Attributes: roll_number, name, and grade. Methods: <ul style="list-style-type: none"> save_to_file(filename): Saves the student's details to a text file. load_from_file(filename): Reads the student's details from the file and creates a Student object. <p>Test the class by creating a student, saving their details to a file, and then loading it into another object.</p> | CO-5 | 3 | |
| Q7 | <p>a) You are given a block of text containing user information, including email addresses. Each email follows a standard format, but they can appear anywhere in the text. Your task is to:</p> <ul style="list-style-type: none"> Use the match function to verify if a string starts with a valid email address. Use the search function to find and extract the first occurrence of an email address anywhere in the string. <p>b) write a regular expression to validate strong password and it should:</p> <ul style="list-style-type: none"> Have at least 8 characters long. Contains at least one uppercase and one lowercase letter. Contains at least one digit. Contains at least one special character (e.g., @, #, \$, %, ^, &, *, !) | CO-6 | 4 4 | |