



B.Tech - Even Sem : Semester in Exam-I
Academic Year:2021-2022

20AD1202 - Object Oriented Programming System

Set No: 2

Time:		Max.Marks: 50					
S.NO	Answer All Questions	Choice	Options	Marks	CO	CO BTL	COI BTL
1.	Given the 3 sides of a triangle - x, y, and z - determine whether the triangle is equilateral, isosceles or obtuse. Note: Equilateral means all sides are equal, isosceles means two of the sides are equal but not the third one, obtuse means all 3 are different.	choice Q-2		4.5Marks	CO1	3	3
2.	Develop and test a Python program that converts pounds to grams, inches to centimeters, and kilometers to miles. The program should allow conversions both ways.(Hint: 1pound=453.59237 grams, 1inch=2.54 cm, 1km=0.6214 miles.			4.5Marks	CO1	3	3
3.	(Check password) Some Web sites impose certain rules for passwords. Write a function that checks whether a string is a valid password. Suppose the password rules are as follows: A password must have at least eight characters. A password must consist of only letters and digits. A password must contain at least two digits. Write a program that prompts the user to enter a password and displays valid password if the rules are followed or invalid password otherwise.	choice Q-4		8Marks	CO1	3	3
4.	Create a program which will allow the user to enter the state of two switches (either 1 (on) or 0 (off)). The program should work out if both switches are on and then output the message 'the light is on'. Otherwise, the program should output the message 'the light is off'. Create a program which asks the user for 3 numbers representing the year, month and day e.g 1982 10 08 and then outputs in the form 8th October 1982.			8Marks	CO1	3	3
5.	Answer both A and B	choice Q-6		12.5Marks	CO1	3	3
5.A.	Write a Python program that prompts the user to enter a list of first names and stores them in a list. The program should display how many times the letter 'a' appears within the list.			6.5Marks	CO1	3	3
5.B.	Write a program segment that uses a while loop to add up all the even numbers between 100 and 200, inclusive.			6Marks	CO1	3	3
6.	Answer both A and B			12.5Marks	CO1	3	3

6.A.	Write a program that prompts the user to enter a Social Security number in the format ddd-dd-dddd, where d is a digit. The program displays Valid SSN for a correct Social Security number or Invalid SSN otherwise.			6.5Marks	CO1	3	3
6.B.	Write a Python program in which a student enters the number of college credits earned. If the number of credits is greater than 90, 'Senior Status' is displayed; if greater than 60, 'Junior Status' is displayed; if greater than 30, 'Sophomore Status' is displayed; else, 'Freshman Status' is displayed.			6Marks	CO1	3	3
7.	Write a program that reads an unspecified number of scores and determines how many scores are above or equal to the average and how many scores are below the average. Assume the input numbers are separated by one space in one line.	choice Q-8		4.5Marks	CO2	3	3
8.	Find whether a given string has unique characters, return True, if duplicates return False sample input 'just' => has unique characters Alexander => has duplicates			4.5Marks	CO2	3	3
9.	Write a function called convertStatus that is passed status code 'f', 's', 'j', or 'r' and returns the string 'freshman', 'sophomore', 'junior', or 'senior', respectively. Design your function so that if an inappropriate letter is passed, an error value is returned. Make sure to include an appropriate docstring with your function.	choice Q-10		8Marks	CO2	3	3
10.	Write a program that reads an unspecified number of integers and finds the ones that have the most occurrences. For example, if you enter 2 3 40 3 5 4 -3 3 3 2 0, the number 3 occurs most often. Enter all numbers in one line. If not one but several numbers have the most occurrences, all of them should be reported. For example, since 9 and 3 appear twice in the list 9 30 3 9 3 2 4, both occurrences should be reported.			8Marks	CO2	3	3
11.	Design a class named Rectangle to represent a rectangle. The class contains: Two data fields named width and height. A constructor that creates a rectangle with the specified width and height. The default values are 1 and 2 for the width and height, respectively. A method named getArea() returns the area of this rectangle. A method named getPerimeter() returns the perimeter. Draw the UML diagram for the class, and then implement the class. Write a test program that creates two Rectangle objects—one with width 4 and height 40 and the other with width 3.5 and height 35.7. Display the width, height, area, and perimeter of each rectangle in this order.	choice Q-12		12.5Marks	CO2	3	3
12.	Write a function called convert-status that is passed status code 'f', 's', 'j', or 'r' and returns the string 'freshman', 'sophomore', 'junior', or 'senior',			12.5Marks	CO2	3	3

	respectively. Design your function so that if an inappropriate letter is passed, an error value is returned. Make sure to include an appropriate docstring with your function.						
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