



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of U.G. Act, 1956)
CHENNAI

Reg. Number: 24MCA1034

Continuous Assessment Test (CAT) – II - October 2024

Programme	:	MCA	Semester	:	Fall 2024-25
Course Code & Course Title	:	PMCA602L - Python Programming	Class Number	:	CH2024250103070
Faculty	:	Dr.B.Saleena	Slot	:	C1
Duration	:	1 ½ Hours	Max. Mark	:	50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.

Answer all questions

Q. No	Sub Sec.	Description	Marks
1.		<p>ABC Bank has planned to generate the online transaction PIN number from the last four digits of Adhar card of the customer. The PIN number is generated by manipulating the last four digits with the following options. Consider the 4-digit number as "RSTU".</p> <ul style="list-style-type: none">If the digit U is an odd digit retain the same digit. If not add 2 with U and discard carry digit if any.If the digit T is a multiple of 4 retain the same digit. If not add T with the updated U value. Discard carry digit if any.Check if the two digits RS together as a perfect square. If not replace RS with the least two-digit perfect square number. <p>Write a python code using functions which will read the last four digits of your Adhar card as an input and return the newly formulated PIN number by incorporating the constraints given above.</p> <p>Note: A perfect square is a number that can be expressed as the product of a number by itself. For example, 1,4,9,16 and 25 (25 is a perfect square because it is the product of integer 5 by itself, $5 \times 5 = 25$).</p>	10
2.		<p>Create a dictionary named shopping cart which will contain the key value pair as name of item and price of item respectively. (2 Marks)</p> <p>Write a python program to create two functions</p> <ul style="list-style-type: none"><code>add_item()</code> to add five elements to the shopping cart. Use arbitrary positional and keyword arguments as the function arguments. No items should be duplicated in the shopping cart.	10

		<p>(6 Marks)</p> <ul style="list-style-type: none"> • <code>view_cart()</code> to view all the elements in the shopping cart. (2 Marks) 	
3.		<p>Write a python code to create a text file input.txt with few lines of text and perform the operations</p> <ul style="list-style-type: none"> • Append two more lines to the file input.txt and <u>count the number of duplicated lines in the text file.</u> (3 Marks) • Read a word from the text file and replace it with any other word of your choice. (Replacement must be done for all the occurrences of the same word in the text file) (3 Marks) • Copy the contents of input.txt to a new file output.txt and handle the exception if the file is not opened in the correct mode for reading or writing. (4 Marks) 	10
4.	<p>Name</p> <p>Type error</p>	<p>(a) Write Python programs to handle the following errors using exception handling. Create a class Temperature with a property Celsius. (5 marks)</p> <ul style="list-style-type: none"> • Attempt to access a <u>non-existent property</u> Fahrenheit and handle the error. • Set Celsius value with an invalid input and identify the error and handle it. <p>(b) Write a program to read the name of customer and his age to create a bank account. If the age is below 10 and greater than 110 then raise an exception otherwise print his name and age. After every customer is processed it must print "Customer age verified and processed". (5 marks)</p>	10
5.		<p>Create a class vehicle with the attributes <i>make</i> and <i>model</i>. Derive two classes car and bike from the class vehicle. car has an attribute number of <i>doors</i> and bike has an attribute <i>bike_type</i>. Derive a new class electric_vehicle from bike and car classes with the attribute <i>battery_capacity</i>. (3 marks)</p> <p>Write a python program to implement the above scenario using inheritance. Identify the inheritance typed used. Initialize the classes using constructors and print the details of electric vehicle (car and bike). Each class must have a display function to display the details of the class. (7 marks)</p>	10

*****All the best *****