S4

SOMAIYA VIDYAVIHAR UNIVERSITY

Semester: August 2022-December 2022		
Maximum Marks:30 **Examination: In-Semester Examination**		**Duration :**01:15 Min
Programme code: **Programme:** Computer Engineering	**Class:** ~~FY~~/SY/~~TY/LY/MTECH~~	**Semester:** ~~I/II~~/III/~~IV/V/VI/VII/VIII~~ **(SVU 2020)**
Name of the Constituent College: K. J. Somaiya College of Engineering		**Name of the department:** COMP/~~ETRX/EXTC/IT/MECH~~
Course Code:116U01C304	**Name of the Course:** Object Oriented Programming Methodology.	

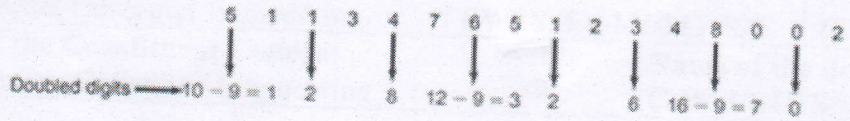
Question No.		Max. Marks	CO Mapped	BT Level
Q.1	Explain what is Auto-boxing and Unboxing with examples.**(05M)** Write the differences between Structural and Object Oriented Programming approaches.**(05M)**	10 M	CO1 CO2	RE, UN
.2	Write a program which accepts information about n no of students from user **(10 M)** Create an array of objects to store stud_id , name, avg_marks. Your program should provide following functionalities 1. To add students according to the descending order of their average marks. 2. To delete any student data based on the student id. 3. To display student details according to the descending order of their Average marks.	10 M	CO2	UN, AP
Q.3 (A)	What is the significance of constructor? Explain types of Constructor with examples in detail. **(05M)** **OR** Explain Method overloading and Method Overriding with examples. **(05M)**	05 M	CO2	RE, UN
Q.3 (B)	During shopping, when you supply your credit card number to an online vendor, data input errors are checked before your credit card is validated. For example, credit cards issued by Visa all have numbers beginning with the digit 4, and those issued by American Express begin with 34 or 37. Another approach of validation is the Luhn algorithm which detects some, but not all, invalid numbers. This algorithm can alert a vendor to some bad numbers. The method works as follows: Beginning with the second-rightmost digit and moving right to left, double every other digit. If the doubling process produces a value	05 M	CO2	AP

greater than 9, subtract 9 from that value.

For example, to check the validity of credit card number

5113 4765 1234 8002 proceed as follows:

Double alternate digits. Subtract 9 from products exceeding 9.



Write a program that determines whether a credit card number with 16 (or fewer) digits passes the Luhn test. **(05M)**

OR

Given a string consisting of lower case English alphabets, Write a program to find the number of distinct subsequences of the string. **(05M)**

Example :

Input: s = "gfg"

Output: 7

Explanation: The seven distinct subsequences are "", "g", "f", "gf", "fg", "gg" and "gfg"