VIT
Vellore Institute of Technology

School of Advanced Sciences
Department of Chemistry
Fall Semester 2022-23
Continuous Assessment Test - II

Course Code : BCHY101L Duration: 90 Minutes Max. Marks : 50

Course Name : Engineering Chemistry Slot : E2 + TE2

Note: Students are allowed to carry one hand-written notebook and one textbook to the examination.

Q. No.	Answer ALL the questions (5 X 10 = 50 Marks)	Marks
1	Elaborate on any two catalytic mechanisms involved in converting hydrogen peroxide into two essential and lifesaving products.	10
2	a) Calculate the changes in enthalpy of 1.2 moles of an ideal monoatomic gas that expands reversibly and adiabatically from a volume of 6 dm^3 to 18 dm^3 at 30 °C. [Hint: $C_v = 1.5$ R] b) Justify the reason for banning the production of methyl bromide in industries.	(5 + 5)
3	a) What do you understand about the "Carnot cycle" and how will you justify that it cannot be realized practically? b) Explain the conduction behaviour of pure silicon and contaminated silicon with small impurities of arsenic.	(5 + 5)
4	a) Briefly explain on how an organic dye can convert solar energy into electrical energy. b) Are capacitors more efficient charge-storing devices than batteries? Justify your answer.	(5 + 5)
5	Explain the working mechanism of an energy device that has wide application in space vehicles and, explain its "pros and cons".	10