



SCHOOL OF ADVANCED SCIENCES

Department of Chemistry

Fall Semester 2023-24

Continuous Assessment Test – 2

Course Code: CHY1701

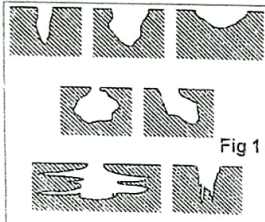
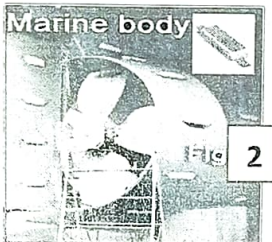
Duration : 90 Minutes **Slot : G2+TG2**

Course Name: Engineering Chemistry

Max. Marks : 50

Class Numbers: VL2023240106221

Faculty Names: Dr.D.Rajagopal

QN	Answer <u>ALL</u> the questions (5 X 10 = 50 Marks)	Marks	CO	BL																					
1	Which form of corrosion does Fig 1 represent and discuss the corrosion reaction. Discuss the role of patches installed on the marine body as given in Fig. 2  Fig 1  Marine body 2	10	CO2	BL1																					
2	(a) Discuss the types of metal oxide (MO) films, and explain the stabilities of the metal oxide films from the table. <table><tr><th colspan="7">Volume ratio for some oxides with reference to metal</th></tr><tr><th>K₂O</th><th>Na₂O</th><th>MgO</th><th>Al₂O₃</th><th>NiO</th><th>Cu₂O</th><th>Cr₂O₃</th></tr><tr><td>0.41</td><td>0.58</td><td>0.79</td><td>1.38</td><td>1.60</td><td>1.70</td><td>2.03</td></tr></table> (b) Offer your views on what will happen when molybdenum and aluminium metals are exposed to dry oxygen atmosphere.	Volume ratio for some oxides with reference to metal							K ₂ O	Na ₂ O	MgO	Al ₂ O ₃	NiO	Cu ₂ O	Cr ₂ O ₃	0.41	0.58	0.79	1.38	1.60	1.70	2.03	5 + 5	CO2	BL2
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0.41	0.58	0.79	1.38	1.60	1.70	2.03																			
3	(a) Discuss on appropriate metal coating on containers used for food storage. (b) If you are asked to do silver coating on a stainless steel spoon, which method would you prefer and elaborate on the process.	5 + 5	CO2	BL2																					
4	(a) Identify and explain a suitable coating on metals / non-metals used for automobile industries. (b) Explain diamond film coating for manufacturing cutting tools.	5 + 5	CO2	BL3																					
5	An element with A=7 and Z=3 is widely used for energy storage system. Based on your understanding of developing alkali metal batteries, offer your views on primary and second batteries of that element with detailed cell reactions with suitable diagrams.	10	CO3	BL3																					