

 SIES Graduate School of Technology RISE WITH EDUCATION NMACA+ (Affiliated to University of Mumbai)		End Semester Examination (R-24) FH 2026 Answer Key with marking scheme	
Branch: EXTC, ECS,CE		Course: Applied Chemistry	
Year/ Semester: II		Course code:FEC2022	
Time: 03 hours		Marks: 80	
			Marks
Q. 1	Attempt any FOUR. (All questions carry equal marks)		
A.	Meissner effect expl. With diagram3M Maglev Train.....2M		5
B.	Tg explanation.....3M Factors (min. 4).....2M		5
C.	Reduced phase rule explanation with formula.....2M Diagram (labelled)3M		5
D.	Min 5 designing methods.....5M		5
E.	Formula for HCV and LCV.....2M Sustitution and Answer.....3M HCV= 5538.9kcal/kg LCV= 5327.58 kcal/kg		5
F.	Layered composite.....2M Laminar composite with diagram and application.....3M		5
Q.2	Attempt any FOUR. (All questions carry equal marks)		
A.	(i) Fullerenes2M Properties and applications.....3M (ii) Preparation of 1:2:3 Superconductors.....3M Applications (min 4)2M		10
B.	(i) Mechanical and electrical properties.....2.5M each (ii) Mn formula Mw formula Mn= 2.9 x 104 Mw= 3.24 x 104.....5M		10
C.	(i) 1kg alloy contains 730g Sn and 270g Pb.....1M Eutectic system contains, Sn=64% and Pb=36%.....1M Hence, corresponding to 270g Sn, mass of Pb= 270 x 64/36= 480 g.....2M Hence, Total mass of eutectic in 1Kg of alloy= 480g + 270g= 750 g1M (ii) Ni, Cr ,Mo, Mn, W.....1M each		10
D.	(i) Explanation.....3M Diag.....2M (ii) metallic coatings.....2M Explanation of container.....3M		10
E.	(i) Total air required= 8.3991 kg3M (with table)		10

	For 2Kg= 16.7982kg.....1M Volume of air = 6.4990m ³1M (ii) fuel cell and battery.....2M Explanation2M Diag.....1M	
F.	(i) Biocomposites explanation.....2M Clasification...2M Applications (min 2)1M (ii) Fibre Reinforced Particles.....2M Types3M	10
Q.3	Attempt any FOUR. (All questions carry equal marks)	
A.	CNTS.....2M Prperties (min 3) and uses (min 3)1.5M each	5
B.	Conducting polymer..2M n-doping and p-doping2M Applications (min 2).....1M	5
C.	Component with examples(min 2).....2.5M Degree of Freedom with examples(min 2).....2.5M	5
D.	(i) and (ii)2.5M each	5
E.	Synthesis (expln + reactions).....3M Advantages (min 4).....2M	5
F.	Definition of matrix.....2M Functions.....3M	5