

CBCS SCHEME

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BCHEC102/202

First/Second Semester B.E/B.Tech. Degree Examination, June/July 2026

Applied Chemistry for Civil Engineering Stream

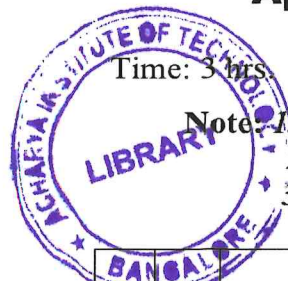
Time: 3 hrs.

Max. Marks:100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M : Marks , L: Bloom's level , C: Course outcomes.

3. VTU Formula Hand Book is permitted.



Module – 1			M	L	C
1	a.	Write the Composition of Glass. Describe the preparation of soda-lime glass and give any two applications.	7	L2	CO1
	b.	Explain the testing of cement by EDTA Method.	7	L3	CO2
	c.	What are Alloys? Explain the properties and applications of aluminium and its alloys.	6	L2	CO3
OR					
2	a.	What is the composition of cement? Explain the manufacturing process of cement.	7	L2	CO1
	b.	Define Refractories. Explain its types based on chemical composition.	7	L2	CO2
	c.	Write a note on the Setting and Hardening process of cement.	6	L3	CO3
Module – 2					
3	a.	Define Photovoltaic Cell. Explain the construction and working of a PV cell.	7	L2	CO1
	b.	Define corrosion. Explain the electrochemical theory of corrosion of steel in concrete.	7	L2	CO2
	c.	Explain : i) Stress corrosion ii) Galvanization.	6	L3	CO3
OR					
4	a.	Define Battery. Explain the construction and working of Li-ion battery.	7	L3	CO2
	b.	What are Fuel cells? Explain the construction and working of methanol-oxygen fuel cell.	7	L2	CO3
	c.	What is Anodizing? Explain anodizing process.	6	L2	CO1

Module – 3

5	a.	Explain the determination of temporary, permanent and total hardness of water by EDTA method.	7	L3	CO5
	b.	In a COD test, 30.2 cm ³ and 14.5 cm ³ of 0.04 N FAS solutions are required for a blank and sample titration respectively. The volume of samples used was 25 cm ³ . Find the COD of the sample solution.	6	L2	CO3
	c.	Explain the synthesis of nano materials by Sol-Gel Method.	7	L1	CO4

OR

6	a.	Define COD. Explain the determination of COD of waste water sample.	7	L1	CO3
	b.	Explain the process of forward osmosis and give any two applications.	7	L2	CO4
	c.	What is Desalination? Explain the desalination of water by electrodialysis method.	6	L3	CO5

Module – 4

7	a.	What are Polymer Composites? Explain the properties and application of fiber Reinforced Polymer Composites (FRPC).	7	L2	CO3
	b.	Explain the synthesis, properties and applications of Chloro Polyvinyl Chloride (CPVC).	7	L2	CO4
	c.	What is Geopolymer Concrete? Explain the synthesis of geopolymer concrete.	6	L3	CO1

OR

8	a.	A polymer sample contains 100, 200, 300 and 400 molecules having molecular mass 1000, 2000, 3000 and 4000 respectively. Calculate the number average and weight average molecular masses of the polymer.	6	L1	CO3
	b.	What are Biodegradable Polymers? Explain the synthesis and applications of polylactic acid.	7	L1	CO1
	c.	What are Adhesives? Give any two properties and applications of epoxy resin.	7	L2	CO4

Module – 5

9	a.	Define Phase Rule. With the help of a neat phase diagram, describe the lead-silver system.	7	L1	CO2
	b.	Explain the estimation of acid mixture using strong acid by conductometric sensors.	7	L3	CO5
	c.	Define the following terms with examples : i) Phase ii) Component iii) Define of freedom.	6	L3	CO5
OR					
10	a.	Explain the Theory and Instrumentation of conductometric sensor.	7	L2	CO2
	b.	Explain the principle, instrumentation and the application of potentiometric sensor in the estimation of iron.	7	L3	CO5
	c.	Explain the determination of pH of soil sample using pH sensor.	6	L3	CO5
