



Sri Srinivasa Educational & Charitable Trust
SAPTHAGIRI COLLEGE OF ENGINEERING

(Affiliated to VTU, Belagavi, and Recognized by AICTE, New Delhi)

14/5, Chikkasandra, Hesaraghatta Main Road, Bengaluru-560057

Internal Assessment –I

Subject: Engineering Chemistry
 Semester/Section: II / CSE, ISE, EEE
 Duration: 1.5 hours

Sub Code: 18CHE22

Max Marks: 30

Date: 16/04/2018.

Note: Answer any two full questions, choosing one from each module

Q No.	Questions	Marks	BTL	CO's
Module-1				
1 a.	Define single Electrode Potential? Derive the Nernst equation for an Electrode Potential.	5	L1, L2	CO1
b.	What are concentration cells? Explain the construction & working of concentration cell.	5	L1, L2	CO1
c.	Explain the construction & working of Nickel Metal Hydride Battery.	5	L1, L2	CO1
OR				
2 a.	What are Ion selective electrodes? How do you determine the pH of the given electrolyte by using glass electrode?	5	L1, L2	CO1
b.	Explain the construction & working of Lithium ion Battery.	5	L1, L2	CO1
c.	The cell potential of copper concentration cell $\text{Cu}/\text{CuSO}_4(0.005\text{M})//\text{CuSO}_4(\text{X})/\text{Cu}$ is 0.0295 v at 25° C. Calculate the value of X.	5	L1, L2	CO1
Module-2				
3 a.	Define Corrosion? Explain the electrochemical theory of corrosion by taking Iron as an example.	5	L1, L2	CO2
b.	What is galvanizing? Explain the galvanization process.	5	L1, L2	CO2
c.	What is Metal Finishing? What are the technological importances of Metal Finishing?	5	L1	CO2
OR				
4 a.	Explain the galvanic corrosion or Differential metal corrosion.	5	L1, L2	CO2
b.	Explain the electroplating of chromium (Hard).	5	L1, L2	CO2
c.	Explain the Electroless plating of Nickel.	5	L1, L2	CO2

CO1: Students can able to explain the working of cells, batteries and fuel cells using electrochemical concepts.

CO2: Students can able to identify the corrosion related problems and develop corrosion resistant materials.

Blooms Taxonomy: L1-Remembering, L2-Understand, L3-Apply, L4- Analyzing, L5-Evaluating, L6- Creating



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Department Chemistry Internal Assessment Test –II

Subject: **Engineering Chemistry**

Semester/Section: **II / C Cycle**

Duration: **1.5 hours**

Sub Code: **18CHE22**

Max Marks: **30**

Date: **17/05/2019.**

Note: Answer any two full questions, choosing one from each module

Question No.	Questions	Marks	BT L	CO's
Module-3				
1 a.	Explain the determination of Calorific value of Solid fuel by Bomb Calorimetric method.	5	L1, L2	CO3
b.	What are Photovoltaic cells? Explain the construction & working of Photovoltaic cell.	5	L1, L2	CO3
c.	What are fuel cells? Mention the difference between battery and fuel cells.	5	L1, L2	CO3
OR				
2 a.	Calculate the GCV & NCV of a coal sample from the following data Mass of coal=0.89g, weight of water taken= 2000 g, water equivalent of Copper calorimeter = 600 g, Rise in temperature = 2.8°C , specific heat of water = $4.187\text{KJ/Kg}^{-1}\text{C}^{-1}$. & % of H_2 =2.5.	5	L1, L2	CO3
b.	Write a note on Bio-diesel.	5	L1, L2	CO3
c.	Explain the production of solar grade Silicon by union carbide method.	5	L1, L2	CO3
Module-3 & 4				
3 a.	What is knocking? Explain its mechanism in IC engine.	5	L1, L2	CO3
b.	Explain the construction & working of Methanol oxygen fuel cell.	5	L1, L2	CO3
c.	Mention the sources, effects & control of Unburnt Hydrocarbons.	5	L1, L2	CO4
.OR				
4 a.	Explain the construction & working of Solid- Oxide fuel cell	5	L1, L2	CO3
b.	Explain the formation & depletion of Ozone in the atmosphere.	5	L1, L2	CO4
c.	Mention the sources, effects & control of Oxide of Nitrogen.	5	L1, L2	CO4

CO3: Able to analyze calorific value of solid or liquid fuel and understand utilization of various energy sources.

CO4: Students can able to explain the sources and effects of environmental pollution

Department Chemistry

Principal
Sapthagiri College of Engineering
14/5, Chikkasandra, Hesaraghatta Main Road
Bengaluru - 560 057



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**Department Chemistry
Internal Assessment –III**

Subject: **Engineering Chemistry**
Semester/Section: **I II/ C Cycle**
Duration: **1.5 hours**

Sub Code: **18CHE22**
Max Marks: **30**
Date: **10/06/2019**

Note: Answer any two full questions, choosing one from each module

Question No.	Questions	Marks	BTL	CO's
Module-4				
1 a.	Name the sources of solid waste and Explain how Solid wastes are disposed by scientific land filling method?	5	L1, L2	CO4
b.	Explain the Secondary treatment of Sewage.	5	L2	CO4
c.	What is desalination? Explain the Desalination of saline water by reverse Osmosis process.	5	L1, L2	CO4
OR				
2 a.	In a COD test, 28.3 cm ³ and 16.6 cm ³ of 0.02N were required for blank and back titration respectively. The volume of sample used is 25 cm ³ . Calculate COD.	5	L3	CO4
b.	What are scales and sludge? How the scales and sludge are formed? Mention the disadvantages of scales and sludge formation.	5	L1, L2	CO4
c.	Explain the process of softening of water by ion exchange method.	5	L1, L2	CO4
Module-5				
3 a.	What is Flame photometry? Explain briefly the theory and instrumentation of flame photometer.	5	L1, L2	CO5
b.	What are nanomaterial? Explain briefly any four size dependent properties of nanoparticles.	5	L1	CO5
c.	Write a short notes on CNT's.	5	L1	CO5
OR				
4 a.	Explain the theory and Instrumentation of Potentiometer.	5	L2	CO5
b.	Explain the following applications of conductometer with a suitable example. i) Strong acid with a strong base ii) Mixture of strong and weak acid with a strong base.	5	L3	CO5
c.	Describe the synthesis of nano materials by sol-gel method.	5	L2	CO5

CO4: Students can able to manage waste disposals and boiler corrosion troubles and apply suitable waste water treatment techniques.

CO5: Students can able analyze different techniques of instrumental analysis and fundamental principles of nanomaterials.


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