

Course: B. Tech

Sem: III

Subject: Advanced Engineering Chemistry

Subject code: BTBSC305/BTBSE3404A

Date: 10/1202018

Duration: 3 Hr.

Marks: 60

**Instructions to the Students:**

1. Each question carries 12 marks.
2. Attempt any five questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it.

	(COs)	Marks
<b>Q.1 Solve Any Two of the following.</b>		
a) Write a note on Pitting corrosion.	01	06
b) What is Cathodic protection? Explain methods to minimize corrosion.	01	06
c) Explain in details various factors affecting the rate of corrosion	01	06
<b>Q.2 Solve Any Two of the following</b>		
a) What are Thermal reactions? Give mechanism of Cope reaction..	02	06
b) What is Quantum Yield? Explain the Photosynthetic reaction of HBr.	02	06
c) Explain the term Fluorescence and Phosphorescence with the help of Jablonski diagram	02	06
<b>Q.3 Solve Any One of the following</b>		12
a) Describe Condensation polymerization and Co-polymerization.	03	
b) What are the Constituents of plastic and Explain Moulding of plastic by Injection method	03	
<b>Q.4 Solve Any Two of the following</b>		
a) Give the Mechanism of Isomerization reaction and Benzidine Rearrangement reaction.	04	06
b) Explain Homolytic and Heterolytic bond fission with suitable examples.	04	06
c) Write a note on: Electromeric effect and Hyper conjugative Effect.	04	06
<b>Q.5 Solve Any Two of the following</b>		
a) Explain the laws of Absorption.	05	06
[i] Lamberts law [ii] Beers law [iii] Beer-Lamberts law	05	
b) Explain the instrumentation and working of Atomic Absorption Spectrophotometer.		06
c) Count the number of <sup>1</sup> H-NMR signals and multiplicity of the respective signals in the following compounds	05	06
[i] Dichloro Ethane [ii] 2-Chloro Prop-1-ene		
[iii] 2-Chloro Butane.		
<b>Q.6 Solve Any Two of the following</b>		
a) Explain the types of Chromatography. Give the applications of Thin Layer Chromatography (TLC).	06	06
b) Describe Instrumentation and Applications of Thermo gravimetric analysis.	06	06
c) Explain the Principle and working of Gas Chromatography.	06	06

\*\*\* End \*\*\*

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