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**BTECH**  
**(SEM I) THEORY EXAMINATION 2023-24**  
**ENGINEERING CHEMISTRY**

**TIME: 3HRS****M.MARKS: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Write Pauli's exclusion principle.	2	2
b.	Give the formula of Bond order.	2	2
c.	Define impurity defect.	2	3
d.	Give the properties of cholesteric crystals.	2	3
e.	Write top-down approach of Nano-materials.	2	2
f.	Give the principle of lime-soda process.	2	1
g.	Write the benefits of reverse osmosis.	2	3
h.	Define phase rule.	2	1
i.	Define ultimate analysis.	2	3
j.	Write the formula for calculation of air for combustion.	2	3

**SECTION B****2. Attempt any three of the following:****10 x 3 = 30**

a.	Classify liquid crystals.	10	1
b.	Describe instrumentation of UV-Visible spectroscopy.	10	2
c.	Give the principle and write various components of battery.	10	3
d.	Describe hardness of water.	10	2
e.	Describe conducting polymers.	10	2

**SECTION C****3. Attempt any one part of the following:****10 x 1 = 10**

a.	Give the concept of nano-materials.	10	2
b.	Write the applications of graphite.	10	2

**4. Attempt any one part of the following:****10 x 1 = 10**

a.	Enlist the point defects in solid.	10	2
b.	Write the applications of fullerenes.	10	3

**5. Attempt any one part of the following:****10 x 1 = 10**

a.	Explain Beer-Lambert Law.	10	1
b.	Classify ion-exchange resins.	10	1

**6. Attempt any one part of the following:****10 x 1 = 10**

a.	Write the analysis of coal.	10	2
b.	Write the principle and working of bomb calorimeter.	10	2

**7. Attempt any one part of the following:****10 x 1 = 10**

a.	Give the method of preparation and application of Nylon-6	10	2
b.	Describe biodegradable polymers.	10	2