

**MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY  
BHOPAL**

**DEPARTMENT OF CHEMISTRY**

**END TERM EXAMINATION (NOV 2024)**

**B.Tech.(First Year)**

<b>Course Code: CHY24110 Course: Environmental Science Semester: First</b>			
<b>Time: 2 hours Max. Marks: 40</b>			
<b>Note: Missing data (if any) may be assumed suitably. If any question requires chemical reactions or diagrams, those need to be presented.</b>			
<b>SECTIONA (Memory Based Questions) [Max 12 Marks]</b>			
<b>S.N.</b>		<b>Marks</b>	<b>CO</b>
<b>Q A1</b>	Present a comparative study (in tabular form) of physico-chemical properties of peat, lignite, bituminous and anthracite coals.	[3]	CO3
<b>Q A2</b>	Write short notes (25-50 words) on any one of the following incidents/compounds? (a) Goals (any three) of Green Chemistry (b) L <sub>10</sub> (18 hour) Index	[3]	CO1
<b>Q A3</b>	State the chemical expressions for generation of H <sub>2</sub> SO <sub>4</sub> from elemental sulphur using thermal and photochemical reactions.	[3]	CO2
<b>Q A4</b>	What is the role of temperature in the eutrophication process? Briefly depict two preventive measurements for such process.	[1.5+1.5]	CO3
<b>SECTIONB (Concept Based Questions – Understand and Apply) [Max 12 Marks]</b>			
<b>Q B1</b>	Can soot act as a good carrier of other particulated matters? If yes, justify your answer	[1+3]	CO1
<b>Q B2</b>	If the river bed adjacent to a coal mine is filled with CaCO <sub>3</sub> , will there be any effect on acid mine drainage?	[4]	CO3
<b>Q B3</b>	Why soil air is beneficial for animals living under the soil? In presence of excess soil water, which type of difficulties may be encountered by those animals?	[2+2]	CO2
<b>SECTIONC (Analytical/Concept Based Questions – Explicate) [Max 16 Marks]</b>			

**ATTEMPT ANY FOUR (04)**

<b>Q C1</b>	<p>How the atom economy can be defined? Calculate the atom economy of desired product of the following reaction.</p> $\text{CH}_3\text{COOH} + \text{CH}_3\text{OH} \rightarrow \text{CH}_3\text{COOCH}_3 + \text{H}_2\text{O}$ <p>If the experimental yield of the same reaction is 40% and 60% at two different conditions, will it affect the atom economy?</p>	<b>[1+2+1]</b>	CO2
<b>Q C2</b>	Write down the expression of sound reduction index for a sound insulating material? If sound pressure at source and receiving side are 50 and 5, respectively in an arbitrary unit, calculate the value of sound reduction index.	<b>[1+3]</b>	CO3
<b>Q C3</b>	How the adsorption process is adopted for air purification in Gas Scrubber? Justify your answer with appropriate diagram and applications.	<b>[4]</b>	CO1
<b>Q C4</b>	Discuss briefly the salient features of the Air (Prevention and Control of Pollution) Act, 1981.	<b>[4]</b>	CO2
<b>Q C5</b>	Nutrients are necessary for agriculture, but appear as a curse for surface water and aquatic biota. Explain.	<b>[4]</b>	CO2

**Course Coordinator: Dr. Soumya Mukherjee**