

G H Raisoni College of Engineering and Management, Pune.

(An Empowered Autonomous Institute affiliated to Savitribai Phule, Pune University, NAAC Accredited "A+" Grade)

FY B.TECH (TERM/SEM -II)

ESE SUMMER 2025 (2023Pattern)

Environmental Chemistry (23UBSL1102)

[Time:-2.5 -Hours]

[Max. Mark 60]

Instructions to the candidates:

- 1) All questions compulsory.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

Q. No.	Sub Question	Marks	CO	BL
1	a) Explain the Scale & Sludge formation in boiler. Mention its causes and preventions.	[6]	CO1	L2
	b) Explain Reverse osmosis processes of water softening with principle & diagram. Mention two advantages & disadvantages of this method.	[6]	CO1	L2
OR				
1	c) If 50 ml of water sample requires 16 ml of 0.01MEDTA during titration .Whereas 50 ml Of boiled water sample requires 12.5 ml of same EDTA in titration Find total, temporary & permanent hardness of water.	[6]	CO1	L3
2	a) Describe the solid waste on the basis of sources and types. Explain the various steps involved in solid waste management.	[6]	CO2	L2
	b) Elaborate sources of Biomedical waste with its steps of management.	[6]	CO2	L2
3	a) Mention the various components of battery; discuss their role and reactions involved. Differentiate between primary & secondary battery.	[6]	CO3	L2
	b) Explain construction & working of H ₂ -O ₂ fuel cell along with diagram and chemical reactions. Mention two advantages of this cell.	[6]	CO3	L2
4	a) Explain the term GCV & NCV. Give relationship between GCV & NCV. In Boy's gas calorimeter, a gaseous fuel was burnt; find the Gross calorific value from the following data. Quantity of water passing through the coil = 25 kg volume of gas used = 0.1m ³ temperature of inlet water = 20 ⁰ c temperature of outlet water = 34 ⁰ c	[6]	CO3	L3
	b) Explain six characteristics of an ideal fuel.	[6]	CO3	L2
OR				
	c) Explain construction and working of Hydroelectric power plant with suitable diagram .Mention two advantages and disadvantages of this method.	[6]	CO3	L2
5	a) Explain any two air pollutants with their effect on human health. Discuss cyclone collector method with diagram for control of air pollution.	[6]	CO4	L2
	b) Describe two sources of water pollution with their effects .Mention any two controlling methods of water pollution.	[6]	CO4	L2
