P.E.S. COLLEGE OF ENGINEERING

(AN AUTONOMOUS INSTITUTE)

CHH. SAMBHAJINAGAR- 431002

Regular Winter Examination – 2025

Course: F.Y.B.Tech.   Branch : CSE/DS/EESemester : I

Subject Code & Name: BTPESB102T & Engineering Chemistry

Max Marks: 60   Date: Duration: 3 Hr.

		Marks
	Instructions to the Students: 1. *All the questions are compulsory.* 2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.* 3. *Use of non-programmable scientific calculators is allowed.* *Assume suitable data wherever necessary and mention it clearly.*	
Q. 1	**Solve Any six of the following.**	**6x2=12**
A)	Reason behind the name complexometric titration.	1
	use of buffer in EDTA titration	1
B)	Aeration of water help in treatment of water for domestic purpose two uses each having 1 mark	**1x2=2**
C)	Definition of Gross calorific value	1
	Definition of Net calorific value	1
D)	Classification of liquid lubricant four types.	2
E)	Reaction at anode in H_2-O_2 fuel cell.	1
	Reaction at cathode in H_2-O_2 fuel cell.	1
F)	Definition of cell constant.	1
	formula and unit	1
G)	Basic principle involved in flame photometry mentioning aspiration, atomization, excitation and emission	2
H)	Statement of Lambert Beer's Law.	1
	mathematical expression	1
I)	Two properties of Gypsum	**1x2=2**

Q.2	Solve Any Two of the following.	12
A)	3 disadvantages of hard water in domestic use	3
	3 disadvantages of hard water industrial use.	3
B)	Explanation demineralization of water including regeneration	3
	Diagram	2
	Applications.	1
C)	Principle	1
	Diagram	2
	Description of refining of petroleum	2
	application	1
Q. 3	Solve Any Two of the following.	12
A)	Given data	1
	% moisture	1
	% Volatile matter	1
	% Ash	1
	% Fixed carbon	1
	Significance	1
B)	Six properties of lubricant.	1x6=6
C)	Principle of conductometric titration.	1
	Two examples	1
	explanation, reaction, graph	2x2=4
Q.4	Solve Any Two of the following.	12
A)	Definition of indicator.	1
	Postulates of Ostwald's theory of acid – base indicator	1
	Explanation about phenolphthalein.	2
	Explanation about methyl orange.	2
B)	Give Principle	1
	Methodology	2
	diagram	1
	Formula of RF value	1
	Significance of Chromatographic techniques.	1

C)	Give Principle		1
	Suitable Diagram		2
	Description with working about component		2
	application		1
Q. 5	Solve Any Two of the following.		12
A)	Preparation of Plaster of Paris from Gypsum.		2
	Properties		2
	Uses.		2
B)	Six differentiating points between Thermoplastic and Thermosetting polymer.		1x6=6
C)	Synthesis of Styrene – butadiene rubber.		2
	properties		2
	uses		2