

Programme Name & Branch : B.Tech & SCOPE, SCORE, SENSE, SELECT
 Course Code : CHY1701
 Course Name : Engineering Chemistry
 Faculty Name(s) : Dr.KARTHIKEYAN S, Dr.KANNADASAN S
 Dr.TAPAS GHATAK, Dr.TAMAS KUMAR PANDA, Dr.PRATHEEPKUMAR ANNAMALAI
 Dr.PUNDLIK RAMBHAU BHAGAT
 Class Number(s) : VL202425050-4333, -4337, -4344, -4355, -4362
 Date of Examination : 01/02/2025
 Exam Duration : 90 minutes

Maximum Marks: 50

General Instruction(s):

- Answer all the Questions.
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
- Course Outcomes Statement:
CO. 1: Recall and analyze the issues related to impurities in water and their removal methods and apply recent methodologies in water treatment for domestic and industrial usage.

Q. No	Question	M	CO	BL
1.	What is Internal treatment to prevent scale formation? Explain any two Internal treatment methods utilised for removal of scale formation in boilers. <i>Graduate Program</i>	10	1	BL2
2.	a) Standard hard water is prepared by dissolving 1.5 gm of CaCO_3 in dil. HCl and diluted to one litre. 50ml of this standard hard water consumed 20 ml of EDTA during titration. 50ml of a sample hard water consumed 25 ml of EDTA solution. 50ml of sample hard water after boiling and filtering consumed 18ml of EDTA. Calculate the total, temporary and permanent hardness of water in ppm. b) What is caustic embrittlement? Elaborate it with appropriate reaction. <i>NaOH</i>	5 + 5	1	BL3
3.	a) "A single molecule of magnesium chloride is enough to corrode entire boiler material". <i>Corrosion</i> Justify the statement with chemical reactions. b) Explain hot lime-soda process with a suitable diagram.	5 + 5	1	BL3
4.	Give the working of ion exchange resins with a neat sketch. How is this method superior to other methods of softening?	10	1	BL3
5.	Define and explain the various stages of breakpoint chlorination with a suitable graphical representation. Give its significance.	10	1	BL2