

CONTINUOUS INTERNAL EVALUATION - 2

Dept: B.S.	Sem / Div: I/D, E, F	Sub: Engineering Chemistry	S Code: 18CHE12
Date: 04/02/2021	Time: 3:00-4:30	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	PBT	CO's
PART A				
1 a	Explain the gravimetric and colorimetric method for estimation of sulphate and fluoride in water respectively.	10	L2	CO4
b	Explain electroplating of decorative and hard chromium with relevant chemical reactions.	8	L1, L2	CO2
c	i) Define BOD and COD. ii) In COD determination, 25mL of an industrial effluent required 12.5mL of 0.015M $K_2Cr_2O_7$ for complete oxidation. Calculate COD.	7	L1, L3	CO4
OR				
2 a	Define demineralisation. Explain ion exchange process for softening of water.	10	L1, L2	CO4
b	What is electrolessplating? Explain electrolessplating of nickel with relevant chemical reactions.	8	L1, L2	CO2
c	How are scale and sludge formed in boilers? Explain the causes of their formation. Mention their disadvantage.	7	L2	CO4
PART B				
3 a	i) Define PV Cell. Explain principle, construction and working of PV Cell. ii) Mention any 3 differences between conventional cell and fuel cell	10	L1, L2	CO3

b	Write a short note on Power alcohol and Bio-diesel.	8	L2	CO ₃
c	Explain the synthesis of solar grade silicon by union carbide process.	7	L2	CO ₃
OR				
4 a	i) Write a short note on unleaded petrol ii) A coal sample with Carbon 90%, Hydrogen 2% and ash 5% was subjected to combustion in a bomb calorimeter. Calculate the gross and net calorific values of the sample given that mass of coal sample taken is 0.95g mass of water taken in the calorimeter was 2000g and the water equivalent of the calorimeter was 700g. Initial temperature is 25°C and final temperature is 27.8°C.	10	L2, L3	CO ₃
b	Define Knocking? Explain knocking of petrol engine, with relevant chemical reaction. Mention its ill effects and prevention methods.	8	L1, L2	CO ₃
c	What are fuel cells. Explain the construction and working of methanol oxygen fuel cell.	7	L1, L2	CO ₃

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