K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

InSem Examination-I Winter2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:I
Class:FY	Program:B.Tech
Branch Code:FYE	Pattern:2023
Name of Course:Applied Chemistry	Course Code:2300104A
Max. Marks:30	Duration:1.15 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. Q.1 and Q.3 are Compulsory.
2. This question paper contains 02 page(s).
3. Answer to each new question is to be started on a new page.
4. Assume suitable data wherever required, but justify it.
5. Draw the neat labelled diagrams, wherever necessary.
6. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

		Marks	CO
Question No. 1			
1 a)	Explain different types of electronic transitions that occur in an organic molecule after absorbing energy from UV-Visible radiations.	(5)	CO1
1 b)	Define the following terms. 1. Reference Electrode 2. Bathochromic shift	(2)	CO4
Question No. 2			
2 a)	Define primary battery? Give construction, working and reactions of dry cell.	(4)	CO1
2 b)	Explain the four stages involved in the conductometric titration between strong acid and strong base with titration curve and reaction	(4)	CO4
	Group OR		
2 c)	Give construction and working of calomel electrode with labelled diagram and representation	(4)	CO1
2 d)	Explain the types of buffer solution with an example. Give procedure for standardisation of pH meter.	(4)	CO4
Question No. 3			
3 a)	Define proximate analysis of coal. Explain the procedure for the determination of moisture, Volatile matter and Ash in the proximate analysis of coal.	(5)	CO4
3 b)	State any two advantages and limitations of power alcohol.	(2)	CO1
Question No. 4			
4 a)	Compare Octane number and Cetane number.	(4)	CO4

4 b)	The fuel containing 11% hydrogen has Gross calorific value of 5620 cal/gm. Calculate its Net Calorific Value. (Latent Heat of water = 587 cal/gam)	(4)	CO5

Group OR

4 c)	Describe fractional distillation process of crude oil with neat labelled diagram.	(4)	CO4
4 d)	A Coal sample when allowed to undergo combustion in Bomb Calorimeter, the following data were obtained. weight of fuel burnt = 0.9 gm weight of water taken in calorimeter = 1170 gm water equivalent of bomb calorimeter = 940 gm Initial temperature = 26°C Final temperature = 28 °C Calculate GCV of the fuel.	(4)	CO5

····· End of question paper·····