



Sanjay Ghodawat University, Kolhapur

2017-18

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

FY B Tech

School of Technology

Department: FY B Tech

FYT 103

Applied Chemistry

Semester – I

~~Nov 2017~~
26 Dec

Re- End Semester Examination

Time: 3 Hrs, Max Marks: 100

- Instructions for Students:**
- 1) All questions are compulsory.
 - 2) Draw neat labeled diagram wherever necessary.
 - 3) Figure to the right indicates maximum marks

		Marks	COs
Q1	a) A sample of Water on analysis was found to contain the following impurities; $\text{Ca}(\text{HCO}_3)_2 = 27 \text{ ppm}$ $\text{Mg}(\text{HCO}_3)_2 = 40 \text{ ppm}$ $\text{CaCl}_2 = 21 \text{ ppm}$ $\text{CaSO}_4 = 21 \text{ ppm}$ Calculate temporary, permanent and total hardness of water sample in ppm.	[8]	CO1
	b) Solve any TWO of the following	[10]	
	i) Define hardness. Explain temporary and permanent hardness.		CO1
	ii) What are the different impurities present in natural water?		CO1
	iii) Explain reverse osmosis technique for treatment of hard water.		CO1
Q2	a) What is hot dipping? Explain process of tinning with schematic diagram.	[6]	CO2
	b) Solve any TWO of the following	[10]	
	i) What are the different factors affecting the rate of corrosion.		CO2
	ii) Define electrochemical corrosion. Explain hydrogen evolution mechanism with example.		CO2
	iii) Explain process of electroplating for prevention of corrosion.		CO2
Q3	Solve any FOUR of the following	[16]	
	a) Give preparation, properties and applications of phenol Formaldehyde resin.		CO3
	b) Distinguish between Thermoplastic and Thermosetting plastics.		CO3
	c) What is the composition of Portland cement?		CO3
	d) Give preparation, properties and application of epoxy resin.		CO3

- e) Write a note on conducting polymer. CO3
- Q4** a) Define alloy with example. Explain the purpose of making alloy. [8] CO4
- b) Solve any **TWO** of the following [10] CO4
- i) Define following terms:
a) Metallurgy b) Flux c) Matrix
d) Mineral e) Ore
- ii) Explain the Magnetic separation process used for concentration of ore. CO4
- iii) Explain composition, properties and application of brass. CO4
- Q5** a) Following observations were recorded in a Boys gas calorimeter experiment. Calculate the gross and net calorific value of the fuel [6] CO5
- Volume of gas used= 0.14 m^3
Weight of water heated= 32.7 kg
Temperature of inlet water= 26°C
Temperature of outlet water= 41°C
Mass of steam condensed = 0.03kg
- b) Solve any **TWO** of the following [10] CO5
- i) Explain principle and construction of Bomb calorimeter. CO5
- ii) What are the characteristics of good fuel? CO5
- iii) Define fuel. Give classification of fuel with example. CO5
- Q6** Solve any **FOUR** of the following [16] CO5
- a) Explain the construction of glass electrode with suitable diagram.
- b) Write a note on Atomic Absorption Spectroscopy. CO5
- c) State and derive an equation for Lambert's law. CO5
- d) Write a note on potentiometric titration. CO5
- e) What are the advantages and disadvantages of Glass electrode?
