DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular/ Winter Examination – 2024

Course: F.Y. B.Tech **Branch : All Branches** **Semester : I**

Subject Code & Name: 24AF1CHEBS102 (Engineering Chemistry)

Max Marks: 60 **Date:** 08/02/2025 **Duration: 3 Hr.**

Instructions to the Students:

1. *Each question carries 12 marks.*
2. *Question No. 1 will be compulsory and include objective-type questions.*
3. *Candidates are required to attempt any four questions from Question No. 2 to Question No. 6.*
4. *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.*
5. *Use of non-programmable scientific calculators is allowed.*
6. *Assume suitable data wherever necessary and mention it clearly.*

					(CO)	Marks
Q. 1	**Objective type questions. (Compulsory Question)**					**12**
1	---------- Indicator is used in Winkler's method of DO determination.				1	1
	a. Methanol	b. Starch	c. Cathol	d. Naphthol		
2	EBT makes ---------- dentate complex with Ca metal				1	1
	a. Bi	b. mono	c. tri	d. tetra		
3	Calorific value measured in -------				2	1
	a. ppm	b. ppb	c. mg/l	d. kcal/kg		
4	Boys Calorimeter is used to determine calorific value of ------- fuel.				2	1
	a. Gas	b. solid	c. wood	d. liquid		
5	Which of the following is an example of semi-solid lubricant?				2	1
	a. paint	b. alcohol	c. grease	d. diesel		
6	Cell constant is measured in ---------				3	1
	a. DO	b. MO	c. CO	d. none		
7	Specific conductance of KCl at 25 °C is ----------				3	1
	a.0.033	b. 0.0288	c. 0.273	d. 0.002765		
8	Color of Methyl Orange in alkali is -------				3	1
	a. green	b. yellow	c. red	d. orange		
9	Wavelength range of UV radiation is ---------				4	1
	a.700-800nm	b. 600-700nm	c. 600-400nm	d. 200-380nm		
10	Flame Photometer is based on ---------- of radiation.				4	1
	a. Substitution	b. Addition	c. Emission	d. refraction		

11	Which of the following is not an example of thermoplastic resin?				5	1
	a. Poly ethylene	b. Poly propylene	c. Poly styrene	d. Urea formaldehyde		
12	The Chemical formula of Gypsum is -----				5	1
	a. $MgSO_4$	b. $AgSO_4$	c. $CaSO_4.2H_2O$	d. FeSO4.2H2O		
Q. 2	**Solve the following.**					**12**
A)	Explain in detail Hot Lime-soda process of softening of water.				1	**6**
B)	Discuss aeration, sedimentation and disinfection process used in domestic water treatment.				1	**6**
Q.3	**Solve the following.**					**12**
A)	What is Calorific value? Explain in detail Bomb calorimeter.				2	**6**
B)	Describe any three Physical Properties of lubricants.				2	**6**
Q. 4	**Solve Any Two of the following.**					**12**
A)	Explain Ostwald's theory of Acid-base indicator.				3	**6**
B)	Write a note on Conductometric titration with suitable examples.				3	**6**
C)	What is rechargeable battery? Explain in detail Lithium-ion battery.				3	**6**
Q.5	**Solve Any Two of the following.**					**12**
A)	Explain in detail Laws of absorption of UV-visible spectroscopy.				4	**6**
B)	What is Chromatography? Discuss the classification of Chromatography				4	**6**
C)	Discuss instrumentation, working and applications of Flame Photometry.				4	**6**
Q. 6	**Solve Any Two of the following.**					**12**
A)	Write a note on Portland Cement.				5	**6**
B)	Explain with suitable examples any two types of polymerization.				5	**6**
C)	Discuss the synthesis of Urea Formaldehyde resin, its properties and uses.				5	**6**
	***** End *****					

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Bachelor of Technology (Electrical Engineering) SEMESTER - 1 Summer 2025 (Supply.)

Course :Bachelor of Technology (Electrical Engineering) Branch : Engineering and Technology

Semester : SEMESTER - 1

Subject Code & Name: 24AF1CHEBS102 - ENGINEERING CHEMISTRY

Time : 3 Hours] **[Total Marks : 60**

Instructions to the Students:

1.Each question carries 12 marks.

2.Question No. 1 will be compulsory and include objective-type questions.

3.Candidates are required to attempt any four questions from Question No. 2 to Question No.6

4.Use of non-programmable scientific calculators is allowed.

5.Assume suitable data wherever necessary and mention it clearly.

Q1. Objective type questions. (Compulsory Question) 12

1 Compound responsible for temporary hardness .....
.a) CaCl b) PbCl c) NbCl d) $Ca(HCO_3)_2$

2 Permanant Hardness is expressed in .....
a) ppm b) mg c) lb d) cm

3 Residual hardness of Ion Exchange process is .....
a) 100ppm b) 200ppm c)2ppm d) 250ppm

4 A good fuel should possess high .....
a) Moisture b) Ash c) Sulphur d) Carbon

5 The unit of calorific value is .....
a) Kg b) Pb c) meter d) K cal/Kg

6 Ultimate analysis determines .....
a) Elements b) functional group c) degree d) temp

7 Specific conductance is expressed in .....
.a) ml b) mhos/cm c) meter d) ampere

8 Methyl orange is .....
a) strong acid b) weak acid c) strong base d) weak base

9 Spectroscopic method used to find functional group is .....
a) UV b) Visible c) NMR d) IR

10 Chromatography is used for .....
a) Separation of compounds b) addition c) deletion d) none

11 Natural rubber is basically a polymer of .....
a) Isoprene b) Propylene c) Ethylene d) Propane

12 A major component of Portland cement is.....
a) Tricalcium silicate b) CaO c) MgO d) CaSO4

Q2. Solve the following. 6

A) Explain Ion exchange process of softening of water with its advantages and disadvantages.

B) What is Hardness? Explain disadvantages of Hardness. 6

Q3. Solve the following.

A) What is Coal? Explain various types of coal. 6

B) Explain solid and liquid lubricants 6

Q4. Solve Any Two of the following.

A) What is fuel cell? Explain working and applications of H2-O2 Fuel cell. 6

B) Describe Conductometric titration with suitable examples. 6

C) Describe construction and working of Glass electrode. 6

Q5. Solve Any Two of the following.

A) Explain construction and working of Flame Photometry. 6

B) Describe the steps involved in the development of TLC plates. 6

C) Explain Lambert's & Beer's laws of absorption with derivation. 6

Q6. Solve Any Two of the following.

A) What is plastic? Explain the constituents of plastic. 6

B) Discuss the chemical composition of Portland cement. 6

C) Give Synthesis, Properties & uses of Urea formaldehyde resin. 6

*** End ***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE –RAIGAD -402 103

Mid Semester Examination – Summer - 2018

Branch: Group A — Sem.:- II

Subject with Subject Code: - Engg. Chemistry (CHM 203) — Marks: 20

Date: - 14/03/2018 — Time: - 1 Hr.

Instructions: - All questions are compulsory. **(Marks)**

Que. No. 1 Multiple Choice Questions. (06)

1. Residual hardness of water in Zeolite process is up to ---------- ppm.

   a) 10 -15 b) 15 - 30 c) 2ppm d) 5 - 7 ppm

2. What is the chemical formula Quick lime?

   a) $CaCO_3$ b) Na_2CO_3 c) CaO d) $Mg(OH)_2$

3. Pb-Ag alloy system is the example of ---------- component system.

   a) 3 b) 2 c) 1 d) 0

4. What is the Triple point temperature (°C) of water system?

   a) 1 b) 0.02 c) 3 d) 0.0098

5. Chemical formula of Galena is ----------.

   a) PbS b) CaO c) ZnS d) ZnO

6. Froth floatation Process is used for concentration of ----------ore

   a) Oxide b) Sulphide c) Magnetic d) Roasting

Que. No. 2 Attempt any one of the following. (06)

a) Explain Ion Exchange method for softening of water with diagram and advantages.

b) What is reduced phase rule equation? Explain Ag-Pb alloy system with phase diagram.

Que. No. 3 Attempt any two of the following. (08)

a) Explain the determination of Hardness of water by EDTA method.

b) Discuss smelting process involved in Metallurgy.

c) Explain electrolytic refining of metal with suitable example.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE –RAIGAD -402 103

Mid Semester Examination – Summer - 2018

Branch: Group A — Sem.:- II

Subject with Subject Code: - Engg. Chemistry (CHM 203) — Marks: 20

Date: - 14/03/2018 — Time: - 1 Hr.

Instructions: - All questions are compulsory. **(Marks)**

Que. No. 1 Multiple Choice Questions. (06)

1. Residual hardness of water in Zeolite process is up to ---------- ppm.

   a) 10 -15 b) 15 - 30 c) 2ppm d) 5 - 7 ppm

2. What is the chemical formula Quick lime?

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   a) 3 b) 2 c) 1 d) 0

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a) Explain the determination of Hardness of water by EDTA method.

b) Discuss smelting process involved in Metallurgy.

c) Explain electrolytic refining of metal with suitable example.

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
Supplementary Examination – Summer 2022

Course: B.Tech **Sem: I / II**
Subject: Engineering Chemistry **Subject code: BTBS 102/ BTBS 202**
Marks: 60 **Date:** **Duration:** **Hr.**

Instructions to the Students:
1. All the questions are compulsory.
2. Draw neat diagram wherever necessary.
3. Figure to right indicates full mark.

		(Level/CO)	Marks
Q.1	**Solve Any Two of the following.**		
A)	Explain in detail Hot Lime-Soda process of softening of water with its advantages and disadvantages.	2	6
B)	Discuss the term Dissolve Oxygen (DO). How it can be determined by Winkler's / Iodometric Method?	2	6
C)	Discuss disadvantages of hard water in Domestic and Industrial use.	1	6
Q.2	**Solve Any Two of the following.**		
A)	Explain the term Component and Degrees of freedom involved in Phase rule equation with examples.	1	6
B)	Explain in detail Phase diagram of one component Water system.	2	6
C)	Explain Phase Diagram of two component Ag-Pb alloy system.	2	6
Q.3	**Solve Any Two of the following.**		
A)	Define corrosion and discuss methods to minimize the rate of corrosion.	2	6
B)	Write a note on Galvanic corrosion.	1	6
C)	Describe hydrogen evolution mechanism involved in electrochemical corrosion.	2	6
Q.4	**Solve Any Two of the following.**		
A)	What is Coal? Discuss various types of coal.	1	6
B)	Explain how percentage of Nitrogen and Sulphur can be estimated from the coal sample.	2	6
C)	Discuss any three physical properties of Lubricant.	2	6
Q.5	**Solve Any Two of the following.**		
A)	Write Nernst equation and how it is applied for the calculation of half-cell potential?	2	6
B)	Write a note on H_2O_2 fuel cell with its applications.	2	6
C)	Explain Conductometric titration with any two examples.	1	6

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,LONERE

End Semester Examination – Summer 2022

Course: B. Tech **Sem: II**
Subject: Engineering Chemistry **Subject code: BTBS202**
Marks: 60 **Date: 20/08/2022** **Duration: 3.45 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *Draw neat diagram wherever necessary*
3. *Figures to right indicates full marks*

		(Level/CO)	Marks
Q. 1	**Solve Any TWO of the following.**		
A)	Explain in details Zeolite process for softening of water with its advantages and disadvantages.	2	6
B)	Explain the determination of hardness of water by EDTA method.	1	6
C)	Discuss disadvantages of hard water in Domestic and Industrial use.	2	6
Q.2	**Solve Any TWO of the following.**		
A)	Write Phase rule equation. Explain the term Phase and Component with suitable examples.	1	6
B)	Draw the Phase diagram of Water System and discuss line/curves, areas and triple point in it.	2	6
C)	Describe Phase diagram of two components Ag – Pb alloy system.	2	6
Q. 3	**Solve Any TWO of the following.**		
A)	Define Corrosion and explain Cathodic protection method to minimize the rate of corrosion.	2	6
B)	Discuss direct chemical corrosion (dry corrosion) occurs due to oxygen.	2	6
C)	Write a note on: Galvanic corrosion.	1	6
Q.4	**Solve Any TWO of the following.**		
A)	What are Fuels? How are they classified? Write characteristics of a good fuel.	1	6
B)	Describe determination of percentage of moisture content and volatile matter of Proximate analysis of coal.	2	6
C)	Discuss any three Physical properties of lubricants.	1	6
Q. 5	**Solve Any TWO of the following.**		
A)	Explain the method of conductance measurement by Wheatstone's Bridge.	2	6
B)	Explain Conductometric titration with any two examples.	2	6
C)	Describe Ostwald's theory of Acid-Base Indicator.	1	6

***** End *****

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,LONERE

End Semester Examination – Summer 2022

Course: B. Tech **Sem: II**
Subject: Engineering Chemistry **Subject code: BTBS202**
Marks: 60 **Date: 20/08/2022** **Duration: 3.45 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *Draw neat diagram wherever necessary*
3. *Figures to right indicates full marks*

		(Level/CO)	Marks
Q. 1	**Solve Any TWO of the following.**		
A)	Explain in details Zeolite process for softening of water with its advantages and disadvantages.	2	6
B)	Explain the determination of hardness of water by EDTA method.	1	6
C)	Discuss disadvantages of hard water in Domestic and Industrial use.	2	6
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A)	Write Phase rule equation. Explain the term Phase and Component with suitable examples.	1	6
B)	Draw the Phase diagram of Water System and discuss line/curves, areas and triple point in it.	2	6
C)	Describe Phase diagram of two components Ag – Pb alloy system.	2	6
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A)	What are Fuels? How are they classified? Write characteristics of a good fuel.	1	6
B)	Describe determination of percentage of moisture content and volatile matter of Proximate analysis of coal.	2	6
C)	Discuss any three Physical properties of lubricants.	1	6
Q. 5	**Solve Any TWO of the following.**		
A)	Explain the method of conductance measurement by Wheatstone's Bridge.	2	6
B)	Explain Conductometric titration with any two examples.	2	6
C)	Describe Ostwald's theory of Acid-Base Indicator.	1	6

***** End *****

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

. Supplementary Winter Examination – 2023

Course: B. Tech. **Branch :** All Branches **Semester : II**

Subject Code & Name: Engineering Chemistry (BTBS202)

Max Marks: 60 **Date: 17/01/2024** **Duration: 3 Hr.**

Instructions to the Students:

1. All the questions are compulsory.
2. Draw a neat diagram wherever necessary
3. Figures to right indicates full marks

		(Level /CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	Explain Hot Lime-Soda process of softening of water with its advantages and disadvantages.	2	6
B)	Discuss disadvantages of hard water in Domestic and Industrial use.	1	6
C)	Explain the determination of hardness of water by EDTA method.	2	6
Q.2	**Solve Any Two of the following.**		**12**
A)	Explain the Phase diagram of one component Water system.	2	6
B)	Discuss the term component and degrees of freedom involved in Phase rule equation with examples.	1	6
C)	Explain Phase diagram of two component Ag-Pb alloy system.	2	6
Q. 3	**Solve Any Two of the following.**		**12**
A)	Discuss Hydrogen evolution mechanism involved in electrochemical corrosion.	2	6
B)	Describe in brief Direct (Dry) chemical corrosion.	1	6
C)	Explain Cathodic protection method to minimize the rate of corrosion.	2	6
Q.4	**Solve Any Two of the following.**		**12**
A)	What is Coal? Explain various types of coal.	1	6
B)	Write a note on Refining of Petroleum.	2	6
C)	Describe in brief solid, semi-solid & liquid lubricants.	2	6
Q. 5	**Solve Any Two of the following.**		**12**
A)	Describe Ostwald's theory of Acid-Base indicator.	1	6
B)	Explain Conductometric titration with any two examples.	2	6
C)	Discuss H_2-O_2 Fuel cell with its advantages.	2	6

**********END**********

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – Summer 2023

Date:-14/07/2023

Course: B.Tech. **Sem: II**

Subject: Engineering Chemistry **Subject code: BTBS202**

Marks: 60 **Duration: 3 hr.**

Instructions for students:

1. All the questions are compulsory.
2. Draw a neat labelled diagram wherever necessary.
3. Read question properly

		Level/CO	Marks
Q1	**Solve any TWO of the following:**		
A)	Explain the zeolite process of softening of water with its advantages and disadvantages.	(understanding)	06
B)	Explain in detail Hot-Lime Soda process with its advantages and disadvantages.	(understanding)	06
C)	How does the Hardness of water determine by EDTA complexometric method.	(Apply)	06
Q2.	**Q2. Solve any TWO of the following:**		
A)	State phase rule equation. Explain the term component of phase rule with examples.	(Understanding)	06
B)	Explain phase diagram of one component water system with neat labelled diagram.	(Understanding)	06
C)	What is meant by Eutectic point? Explain silver-lead 2 component alloy system with phase diagram.	(application)	06
Q3.	**Solve any TWO of the following:**		
A)	Write a note on Dry/Chemical corrosion. Explain mechanism of corrosion due to oxygen.	(knowledge)	06
B)	B) Suggest the criteria for selection of metal and role of proper designing for corrosion control.	(understanding)	06
C)	C) Define Anodic protection method and explain the process with the help of neat labelled diagram.	(knowledge)	06
Q4.	**Solve any TWO of the following:**		
A)	Define Calorific value and the concept of Gross and Net calorific value.	(knowledge)	06
B)	What are the conditions under which solid lubricants are used and write a note on Graphite.	(application)	06
C)	Describe Fractional distillation process with neat labelled diagram and give end use of each fraction.	(Understanding)	06
Q5	**Solve any TWO of the following**		
A)	A) Define Ohm's law, Specific conductance, equivalent conductance, molecular conductance, and cell constant with their units.	(Understanding)	06

B)	B) Write a note on Ostwald's theory of acid base indicators.	(knowledge)	06
C)	C)What is conductometric titration? Explain conductometric titration of strong acid versus strong base with graphical representation.	(Application)	06

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – Summer 2023

Date:-14/07/2023

Course: B.Tech. **Sem: II**

Subject: Engineering Chemistry **Subject code: BTBS202**

Marks: 60 **Duration: 3 hr.**

Instructions for students:

1. All the questions are compulsory.
2. Draw a neat labelled diagram wherever necessary.
3. Read question properly

		Level/CO	Marks
Q1	**Solve any TWO of the following:**		
A)	Explain the zeolite process of softening of water with its advantages and disadvantages.	(understanding)	06
B)	Explain in detail Hot-Lime Soda process with its advantages and disadvantages.	(understanding)	06
C)	How does the Hardness of water determine by EDTA complexometric method.	(Apply)	06
Q2.	**Q2. Solve any TWO of the following:**		
A)	State phase rule equation. Explain the term component of phase rule with examples.	(Understanding)	06
B)	Explain phase diagram of one component water system with neat labelled diagram.	(Understanding)	06
C)	What is meant by Eutectic point? Explain silver-lead 2 component alloy system with phase diagram.	(application)	06
Q3.	**Solve any TWO of the following:**		
A)	Write a note on Dry/Chemical corrosion. Explain mechanism of corrosion due to oxygen.	(knowledge)	06
B)	B) Suggest the criteria for selection of metal and role of proper designing for corrosion control.	(understanding)	06
C)	C) Define Anodic protection method and explain the process with the help of neat labelled diagram.	(knowledge)	06
Q4.	**Solve any TWO of the following:**		
A)	Define Calorific value and the concept of Gross and Net calorific value.	(knowledge)	06
B)	What are the conditions under which solid lubricants are used and write a note on Graphite.	(application)	06
C)	Describe Fractional distillation process with neat labelled diagram and give end use of each fraction.	(Understanding)	06
Q5	**Solve any TWO of the following**		
A)	A) Define Ohm's law, Specific conductance, equivalent conductance, molecular conductance, and cell constant with their units.	(Understanding)	06

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular & Supplementary Summer 2024

Course: B. Tech. **Branch:** Common to All Branches **Semester: II**

Subject Code & Name: Engineering Chemistry BTBS202

Max Marks: 60 **Date:** 14/06/2024 **Duration: 3 Hr.**

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.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/ CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	Explain Zeolite process for softening of water with its advantages and Disadvantages.	2	**6**
B)	Define- 1) Hard water 2) Soft water 3) Scale 4) Sludge 5) Temporary hardness 6) Permanent hardness	1	**6**
C)	Describe the determination of dissolved oxygen in water by Iodometric method.	2	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	State Gibb's Phase rule equation. Explain the term number of phase and degree of freedom with examples.	1	**6**
B)	Explain the Phase diagram of one component water system.	2	**6**
C)	Explain Silver – Lead two component alloy system with phase diagram.	2	**6**
Q. 3	**Solve Any Two of the following.**		**12**
A)	Explain Hydrogen evolution mechanism of wet corrosion.	2	**6**
B)	Explain factors influencing rate of corrosion.	1	**6**
C)	Write a note on cathodic protection method of corrosion.	2	**6**
Q.4	**Solve Any Two of the following.**		**12**
A)	Explain how the percentage of Carbon, Hydrogen and Nitrogen in coal can be estimated.	2	**6**
B)	Explain liquid lubricants in detail.	1	**6**
C)	Explain in detail Refining of petroleum.	2	**6**
Q. 5	**Solve Any Two of the following.**		**12**
A)	Explain the principle of Conductometric titration with example of a) Strong acid and Strong base b) Weak acid and Weak base	2	**6**
B)	Explain Ostwald's theory of acid – base indicator.	2	**6**
C)	Define the terms specific conductance, molecular conductance, equivalence conductance and cell constant with their units.	1	**6**
	***** End *****		

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
End Semester Examination (Supplementary) – Dec. 2018

Course: B. Tech (All Branches) **Semester:** I/II
Subject: Engineering Chemistry **Sub Code:** CHM103/ CHM203
Date: 01/12/2018 **Marks:** 60 **Duration:** 3 Hr.

Instructions to the Students

1. *Each question carries 12 marks.*
2. *Attempt any five questions of the following.*
3. *Illustrate your answers with neat sketches, diagram etc., wherever necessary.*
4. *If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly*

(Marks)

Q.1. Attempt Any Two questions of the following.

a) Explain Zeolite process of softening of water with its advantages and disadvantages. 06
b) How does the Hardness of water determined by EDTA Complexometric method? 06
c) Write note on: Dissolved Oxygen. 06

Q. 2. a) Explain the term Components and Degrees of Freedom involved in it with examples. 06

b) Explain one component Sulphur system with phase diagram. 06

Q.3. a) Explain any two physical methods of concentrations of ore. 06

b) Describe the process of Electrolytic Refining of crude copper metal. 06

Q.4. Attempt Any Two questions of the following.

a) What are the types of fuels and characteristics of good fuel? 06
b) Explain in detail the Proximate Analysis of Coal. 06
c) Describe the Thick film and Extreme pressure lubrication with examples? 06

Q.5. a) How does Ethyl alcohol manufactured from molasses by Fermentation process? 06

b) Explain synthesis, physical-chemical properties and uses of Pyridine. 06

Q.6. Attempt Any Two questions of the following.

a) Explain Quinonoid theory of Acid Base Indicator. 06
b) Write note on: Glass Electrode. 06
c) What is Cell Constant and how it can be determined? 06

*** End***

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,LONERE

Winter End Semester Examination –Dec 2019

Course: F.Y.B. Tech **Sem: I**
Subject: Engineering Chemistry (CHM103/CHM203) **Marks: 60**
Date: 16/12/2019 **Duration: 3 Hr.**

Instructions to the Student:

1 Each question carries 12 marks.
2 Attempt any FIVE questions of the following.
3 Illustrate your answers with neat sketches, Diagram etc. Whenever necessary.

		(Level / CO)	Marks
Q.1	Solve **Any Two** questions of the following.		
	A) Explain Zeolite process of softening of water with its advantages and disadvantages	01	06
	B) Write a note on Biological Oxygen Demand (BOD).	01	06
	C) How does the hardness of water determined by using EDTA method.	01	06
Q.2	Attempt the following questions.		
	A) Explain in detail Phase diagram of Water system	02	06
	B) State Phase Rule equation. Explain the term Phase and Component with suitable examples.	02	06
Q.3	Attempt the following questions.		
	A) Explain the Froth-Flotation & Magnetic separation method for concentration of ore.	03	06
	B) Explain the reduction of ore by Smelting process	03	06
Q.4	Solve **Any Two** questions of the following.		
	A) Explain Proximate Analysis of Coal.	04	06
	B) Give the classification of fuel and explain characteristics of a good fuel.	04	06
	C) Discuss the type of Lubrication with examples.	04	06
Q.5	Attempt the following questions.		
	A) Explain Synthesis, Physical, Chemical properties and uses of Pyridine.	05	06
	B) How does ethyl alcohol manufacture from molasses by fermentation Process	05	06
Q.6	Solve **Any Two** questions of the following.		
	A) Write a note on : Conductometric titrations	06	06
	B) Explain Ostwald's theory of acid base indicators.	06	06
	C) Write a note on: Glass electrode.	06	06

Paper End

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,LONERE 402103

Supplementary Examination – Summer 2019

Course: B. Tech **Sem: I/II**

Subject: Engineering Chemistry **Subject Code:CHM103/203**

Marks: 60 **Date:4/6/2019** **Duration: 3 Hr.**

Instructions to the Students:

1. Each question carries 12 marks.
2. Attempt any FIVE questions of the following.
3. Illustrate your answers with any neat sketches, diagram etc. Whenever necessary.
4. If some parts or parameter is noticed to be missing, you may appropriately assume it and should mention clearly

		(Level / CO)	Marks
Q.1	Solve **Any Two** of the following.		
	A) Explain in detail Ion Exchange process with its advantages and disadvantages.	01	06
	B) How does the hardness of water determined by EDTA by complexometric Method?	01	06
	C) Write a note on Chemical Oxygen Demand (COD).	01	06
Q.2	A) State Phase Rule equation and Explain the term Component of Phase Rule with examples.	02	06
	B) Explain in detail Phase Diagram of Sulphur system.	02	06
Q.3	A) Explain the Froath Floatation and Magnetic separation method of physical concentration of metals.	03	06
	B) Explain the electrolytic refining of Cu metal.	03	06
Q.4	Solve **Any Two** of the following.		
	A) Explain Thick film and Thin film Lubrication with suitable examples.	04	06
	B) Explain the Proximate analysis of coal with its significance.	04	06
	C) Give the classification of fuels and explain characteristics of good fuel.	04	06
Q.5	A) How does ethyl alcohol manufacture from molasses by Fermentation process?	05	06
	B) Explain synthesis, physical-chemical properties and uses of Naphthalene.	05	06
Q.6	Solve **Any Two** of the following.		
	A) Define the terms Ohm's law, Specific Conductance, Equivalent conductance, Molecular conductance and cell constant with their units.	06	06
	B) Explain Debye- Huckel theory of strong electrolyte.	06	06
	C) Explain the principal of Conductometric titration with example of a) Strong acid and Strong base b) Weak acid and Strong base.	06	06

End

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,LONERE
Winter End Semester Examination – Dec 2019

Course: F.Y. B. Tech | **Sem: I**
Subject: Engineering Chemistry (CHM1202) | **Marks: 60**
Date: 16/12/2019 | **Duration: 3 Hr.**

Instructions to the Student:
1. All questions are compulsory.
2. Use of non-programmable scientific calculators is allowed.
3. Each question carries 12 marks.
4. Illustrate your answers with neat sketches, Diagram etc. Whenever necessary.

		(Level / CO)	Marks
Q.1	Solve **Any Two** of the following.		
	A) Explain in detail Hot Lime-soda process with its advantages and disadvantages.	01	06
	B) Explain the determination of Dissolved Oxygen by Winkler's Method.	01	06
	C) Define Hard and Soft water. How does the hardness of water determined by EDTA complexometric method?	01	06
Q.2	Solve **Any Two** of the following.		
	A) What is Phase Rule? Explain the term Component and Degree's of Freedom with suitable examples.	02	06
	B) Explain in detail Phase Diagram of Water system.	02	06
	C) Describe Phase Diagram of two component Ag-Pb alloy system.	02	06
Q.3	Solve **Any One** of the following.		
	A) i) Explain electrolytic refining of metal.	03	06
	ii) Discuss the process of Calcination and Roasting of ore.	03	06
	B) Explain Froth-Flotation, Magnetic separation and Gravity separation methods of concentration of ore.	03	12
Q.4	Solve **Any Two** of the following.		
	A) Discuss the Physical properties of Lubricant.	04	06
	B) Describe the process of determination of % of Carbon, Hydrogen and Sulphur in the coal.	04	06
	C) Explain in detail the process of Refining of Petroleum.	04	06
Q.5	Solve **Any One** of the following.		
	A) i) Write a note on Conductometric titrations.	05	06
	ii)Write a note on glass electrode.	05	06
	B) Explain in detail Qstwald's and Quinonoid Theory of acid base indicators.	05	12

Paper End

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,LONERE

End Semester Examination – Summer 2019

Course: B. Tech **Sem: I & II**
Subject: Engineering Chemistry **Subject code:CHM1202**
Marks: 60 **Date: 16/05/2019** **Duration: 3 Hr.**

Instructions to the Students:

1. All question are compulsory.
2. Each question carry 12 marks.
3. Illustrate your answers with neat sketches, diagrams etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it.

		(Level / CO)	Marks
Q.1	Solve **Any Two** of the following.		
	A) Explain Zeolite process with its advantages and disadvantages.	01	06
	B) Explain the determination of Dissolve Oxygen (DO) by Winkler's Method.	01	06
	C) Write a note on Ion exchange resins.	01	06
Q.2	Solve **Any Two** of the following.		
	A) What is Phase Rule? Explain the term Phase and Degree of Freedom with examples.	02	06
	B) Explain in detail Phase Diagram of Sulphur system.	02	06
	C) Describe Phase Diagram of two component Ag-Pb alloy system.	02	06
Q.3	Solve **Any One** of the following.		
	A) i) Write various types of ore.	03	06
	ii) Explain the Froth Flotation and Magnetic separation method of concentration of ore.		06
	B) i) Explain the reduction of ore by smelting process.	03	06
	ii) Explain the electrolytic refining of metal.		06
Q.4	Solve **Any Two** of the following.		
	A) What are Fuels? How they are classified? State characteristics of a good fuel.	04	06
	B) Describe in brief types of lubricants.	04	06
	C) Explain how the percentage of Nitrogen and Sulphur in coal can be estimated.	04	06
Q.5	Solve **Any One** of the following.		
	A) i) Explain the method of conductance measurement and discuss the term cell constant.	05	06
	ii) Discuss Asymmetric effect suggested by Debye-Huckel theory of strong electrolytes.		06
	B) i) Write a note on glass electrode.	05	06
	ii) Explain Ostwald's Theory of acid base indicators.		06

END

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,LONERE

End Semester Examination – Summer 2019

Course: B. Tech **Sem: I & II**
Subject: Engineering Chemistry **Subject code:CHM1202**
Marks: 60 **Date: 16/05/2019** **Duration: 3 Hr.**

Instructions to the Students:

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		(Level / CO)	Marks
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	C) Write a note on Ion exchange resins.	01	06
Q.2	Solve **Any Two** of the following.		
	A) What is Phase Rule? Explain the term Phase and Degree of Freedom with examples.	02	06
	B) Explain in detail Phase Diagram of Sulphur system.	02	06
	C) Describe Phase Diagram of two component Ag-Pb alloy system.	02	06
Q.3	Solve **Any One** of the following.		
	A) i) Write various types of ore.	03	06
	ii) Explain the Froth Flotation and Magnetic separation method of concentration of ore.		06
	B) i) Explain the reduction of ore by smelting process.	03	06
	ii) Explain the electrolytic refining of metal.		06
Q.4	Solve **Any Two** of the following.		
	A) What are Fuels? How they are classified? State characteristics of a good fuel.	04	06
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	C) Explain how the percentage of Nitrogen and Sulphur in coal can be estimated.	04	06
Q.5	Solve **Any One** of the following.		
	A) i) Explain the method of conductance measurement and discuss the term cell constant.	05	06
	ii) Discuss Asymmetric effect suggested by Debye-Huckel theory of strong electrolytes.		06
	B) i) Write a note on glass electrode.	05	06
	ii) Explain Ostwald's Theory of acid base indicators.		06

END

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD - 402 103
End Semester Examination, May 2018

Branch: B. Tech **Semester: II**

Subject with Subject Code: Engineering Chemistry [CHM203] **Marks: 60**

Date: 18 / 05 / 2018 **Time: 3 Hrs.**

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Instructions to the Students:

1. Each question carries 12 marks.
2. Attempt any five questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

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Q.1. Attempt Any Two questions of the following.

a) Explain Zeolite process of softening of water with its advantages and disadvantages. 06

b) What are the types of water and explain methods to remove temporary hardness? 06

c) Write note on: Dissolved Oxygen. 06

Q. 2. a) State Phase rule equation. Explain the term Phase involved in it with examples. 06

b) Explain areas, curves, triple point and metastable curve of water system with phase diagram. 06

Q.3. a) Explain any two physical methods of concentrations of ore. 06

b) What is Smelting? Explain the process of isolation of metals by Pyrolysis. 06

Q.4. Attempt Any Two questions of the following.

a) What are the types of fuels and characteristics of good fuel? 06

b) Describe the process of determination of % of C, H and N in the coal. 06

c) How can you differentiate the Thick film and Extreme pressure lubrication with examples? 06

Q.5. a) What is Fermentation? Discuss how Invertage and Zymase brings the conversion of cane sugar to Ethyl alcohol. 06

b) Explain synthesis, physical-chemical properties and uses of Naphthalene. 06

Q.6. Attempt Any Two questions of the following.

a) What are the types of indicators? Explain Quinonoid theory of Acid Base Indicator. 06

b) Write note on: Conductometric Titrations. 06

c) Explain in detail Debye-Huckel theory of Strong electrolyte. 06

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD - 402 103
End Semester Examination, May 2018

Branch: B. Tech **Semester: II**

Subject with Subject Code: Engineering Chemistry [CHM203] **Marks: 60**

Date: 18 / 05 / 2018 **Time: 3 Hrs.**

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Instructions to the Students:

1. Each question carries 12 marks.
2. Attempt any five questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
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