Seat No.	

Total No. of Pages: 2

SHIVAJI UNIVERSITY, KOLHAPUR

DATTAJIRAO KADAM ARTS, SCIENCE AND COMMERCE COLLEGE, ICHALKARANJI

B.Sc. (Part – II) (Semester – III) (New) (CBCS)

Examination October, 2023

CHEMISTRY (Paper - VI)

DSC– C4: Industrial Chemistry

Sub. Code: 73302

Day and Date: Friday, 10-11-2023 **Total Marks: 50**

Time: 02.30 p.m. to 04.30 p.m.

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams and give equations wherever necessary.
4) Use of Scientific calculator and logarithmic table is allowed.

Q 1 A) Answer the following in one sentence. [05]

a) What are the raw materials obtained from lithosphere?

b) Define- Ore

c) Write two types of corrossion.

d) What are the methods used for the pulp manufacture?

e) What is soft soap?

B) Choose the most correct alternative for each of the following and rewrite the sentences. [05]

a) The number of parts of solute per million parts of the solution is known as ----------.

i) ppb solution ii) ppt solution

iii) pps solution iv) ppm solution

b) The amount of substance deposited or dissolved at any electrode is directly proportional to the quantity of electricity passed through the electrolyte. This law is given by -------.

i) Whitney ii) Faraday

iii) Linus Pauling iv) Einstein

c) Current density is expressed in----------.

i) A/sq.ft ii) A/dm^2

iii) both i) and ii) iv) none of these

d) Deriphat is a---------- detergent

i) anionic ii) cationic

iii) ampholytic iv) None of these

e) Almost all paper mills use ----------for bleaching.

i) chlorine ii) SO_2

iii) both i) and ii) iv) nitrogen

Q 2) Attempt any TWO of the following. [20]

a) Discuss in detail electrochemical theory of corrosion.

b) What are the problems of paper industry? Explain features of good paper industry.

c) Explain principle raw materials used for manufacture of soap by boiling..

d) What is distillation? Mention different types of distillation. Explain vacuum distillation with neat labeled diagram.

Q.3) Answer any four of the following. **[20]**

a) Explain cleansing action of soap..

b) Write a short note on "Anodising".

c) 25 ml of 3.0 M HNO_3 are mixed with 75 ml of 4.0 M HNO_3. If the volumes are additive, calculate the molarity of final mixture or mixed solution.

d) Define and explain the terms i) acidity of base and ii) mole fraction.

e) Describe unit processes and unit operations with suitable examples

f) Write short note on Froth flotation method.

Seat No.	

Total No. of Pages:2

SHIVAJIUNIVERSITY,KOLHAPUR

DATTAJIRAOKADAMARTS,SCIENCEANDCOMMERCECOLLEGE,ICHALKARANJI

B.Sc. (Part – II) (Semester – III) (New) (NEP)

Examination October, 2023

CHEMISTRY (Paper- VI)

DSC– 4: AnalyticalChemistry.

Code: 91567

Day and Date: Friday, 10-11-2023 **Total Marks: 40**

Time: 2.30 p.m. to 4.30 p.m.

Instructions: **1) All questions are compulsory.**
2) Figures to the right indicate full marks.
3) Draw neat diagrams and give equations wherever necessary.

Q 1.Choosethe most correct alternative for each of the following and rewrite the sentences. **[08]**

a) Driving force causing digestion is----------.

a) free energy b) surface area c) surface energy d) kinetic energy

b) The energy content or heating efficiency of fuel is expressed in ----------

a) Flash point b) calorific value c) octane number d) Cetane number

c) pH range of potable water is ----------.

a) 7.0 to 8.5 b) 4.5 to 8.0 c) 2.0 to 4.5 d) 8.0 to 11.5

d) DMG is specific reagent for ----------.

a) Al b) Mg c) Fe d) Ni

e) Temporary hardness to the water arises due to----------.

a) CO_3^{2-} b) HCO_3^- c) $HSiO_3^-$ d) Cl^-

f) The electrostatic forces operate in chromatography type----------.

a) adsorption b) ion-exchange c) permeation d) affinity

g) Electrochemical theory of corrosion was introduced by ----------.

a) Whitney b) Evans c) Keir d) Faraday

h) The stationary and mobile phase used in TLC are ----------.

a) liquid-gas b) liquid-solid c) liquid and liquid d) either b or c

Q 2) Attempt any TWO of the following. [16]

a) Define Precipitation and explain the essential requirements of good precipitation.

b) What is physical analysis of water? Mention various physical parameters of water. Explain any two parameters.

c) What is the principle of adsorption chromatography? Explain the steps involved in adsorption chromatography.

Q.3) Answer any four of the following. **[16]**

a) Write a short note on composition of petroleum.

b) Discuss electrochemical theory of corrosion.

c) Explain processing of petroleum.

d) Write a short note on Nucleation.

e) What is corrosion? Explain types of corrosion.

f) Write a short note on Co-precipitation.

Seat No.	

Total No. of Pages:2

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