Scheme – I

Sample Question Paper

Programme Name	: Diploma in Textile Technology	
Programme Code		
Semester	: Third	22362
Course Title	: Industrial Chemistry	
Marks	: 70	Time: 3 Hrs.

Instructions:

(1) All questions are compulsory.

- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following.

- a) Define the term ' hardness of water'
- b) Define the term 'calorific value' of fuel.
- c) Draw the chemical structure of :
 - 1) Ammonium sulphate 2) Sodium carbonate.
- d) Define the term 'saponification value' of oil.
- e) List the chemical properties of soaps.
- f) Define the term 'volumetric analysis'.
- g) Define the term 'Coordination number'

Q.2) Attempt any THREE of the following.

- a) Distinguish between Scale and Sludge.
- b) Select the characteristics of fuel while using it for boiler feed purpose.
- c) Explain the following chemical properties of sulphuric acid with relevant chemical reactions. 1) Neutralization 2) Reaction with Zn.
- d) Describe foaming property of soap with labeled diagram.

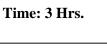
Q.3) Attempt any THREE of the following.

- a) Describe the following types of titration with relevant examples
 - 1) Acid base titration
 - 2) Precipitation titration.
- b) Explain the factors affecting the stability of complex ion and coordination compounds
- c) Differentiate between primary and secondary standards with relevant examples.
- d) Two fabric samples A &B are supplied to test the wetting property. Fabric sample A does not undergo wetting while sample B undergo wetting within no time. Suggest the method to improve wetting property of sample A. Predict the reason of better wetting property of sample B .

10 Marks

12 Marks

12 Marks



Q.4) Attempt any THREE of the following.

- a) Classify the fuels based on their physical state with relevant examples
- b) Constant Burette reading by an expert is 10.5ml.Observed burette reading for the same titration is 10.8 ml. Determine accuracy and precision in the performed titration.
- c) A sample of fuel contain C = 60% O = 33% H = 6% S = 0.5% N = 0.3% & Ash = 0.3% .Calculate the Higher Calorific Value and Lower Calorific Value of fuel.
- d) A water sample contains dissolved salts of Calcium. Suggest the procedure for determining the dissolved calcium salts in water.
- e) Describe the role of sodium hexa metaphosphate as a water softener.

Q.5) Attempt any TWO of the following.

- a) Show the reactions indicating ion exchange occurring in cationic exchanger and anionic exchanger.
- b) Complete following chemical reactions
 - 1. $Na_2CO_3 + HCl$
- c) Suggest the procedure to determine the purity of acetic acid using following chemicals :1) Oxalic acid 2) Caustic 3) Phenolphthalein

Q.6) Attempt any TWO of the following.

- a) Choose relevant chemicals along with their formulae for following wet process
 - i. Scouring ii. Mercerizing iii. Bleaching.
- b) Select the type of titration required for determination of sap value of oil. Describe the procedure of determining saponification value of castor oil.
- c) A sample of water contains the following impurities in mg/lit

Ca(HCO ₃) ₂ = 4.86	mol.wt =162	
$Mg(HCO_3)_2 = 5.8$	mol.wt =146	
$CaSO_{4} = 6.80$	mol.wt =136	
$CaCl_2 = 3.14$	mol.wt =111	
KCl =10.0	mol.wt =75	
$MgSO_{4=}\ 8.40$	mol.wt =120	

Calculate the temporary & permanent hardness of water.

12 Marks

12 Marks

12 Marks

Scheme – I

Sample Test Paper - I

Programme Name	: Diploma in Textile Technology	
Programme Code		
Semester	: Third	22362
Course Title	: Industrial Chemistry	
Marks	: 20	Time: 1 Hour

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

- a) List the water quality parameters.
- b) Draw a structures of (i) sodium hydrosulphite and (ii) hydrogen peroxide.
- c) Define fuel with relevant example.
- d) Define the term 'reverse osmosis'.
- e) Define' Higher Calorific value' and 'Lower Calorific Value'.
- f) State the role of H_2O_2 in textile wet process.

Q.2 Attempt any THREE.

a) A water sample contains following calcium and magnesium salts. Suggest the method

of removing these salts from water.

1) CaSO₄ 2) MgSO₄ 3) Ca (HCO₃)₂ 4) Mg(HCO₃)₂ 5) CaCl₂

- b) Compare solid fuel and liquid fuel.
- c) Explain chemical properties of following chemicals.

1) Sulphuric acid 2) Hydrochloric acid

d) A sample of water contains the following impurities in mg/lit

Ca(HCO ₃) ₂ =15	mol.wt =162
$Mg(HCO_3)_2 = 10$	mol.wt =146
$CaSO_4 = 10$	mol.wt =136
$MgSO_{4=}\ 12$	mol.wt =120
NaCl= 14	mol.wt =58.5

Calculate the temporary & permanent hardness of water.

08 Marks

12 Marks

Scheme – I

Sample Test Paper - II

Programme Name	: Diploma in Textile Technology		
Programme Code	: TC	г	
Semester	: Third		22362
Course Title	: Industrial Chemistry	L	
Marks	: 20		Time: 1 Hour

Instructions:

(1) All questions are compulsory.

- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

- a) Define co ordination compound with example
- b) List the different types of titration.
- c) Draw the structure of sodium salt of EDTA
- d) Define the term 'iodine value' of oil.
- e) Define the terms fat and oil.

Q.2 Attempt any THREE.

- a) Describe the process of hydrogenation of oils. Name oils which can be hydrogenated
- b) Explain the following properties of soap 1) Soap solution as a colloidal electrolyte2) Wetting agent.
- c) Differentiate between Accuracy and Precision with relevant example
- d) Explain the uses of coordinating compounds.

08 Marks

12Marks

4