LIST OF PRACTICALS

PRACTICALS	EQUIPMENT	CHEMICALS
Chapter 1: Fundamentals of Chemistry		
1. Separate the given mixture by physical method.	glass plate, spatula, ,magnet, test tube, beaker, gas burner, matches, safety goggles	iron filings, sand or any other soluble mix
Chapter 2: Structure of Atoms		
None	None	None
Chapter 3: Periodic table and periodicity of properties	None	None
Chapter 4: Structure of molecules		
None	None	None
Chapter 5: Physical States of Matter		
1. Determine the Melting Point of Naphthalene.	beaker, thermometer, Bunsen burner, tripod stand, wire gauze, glass stirrer, capillary tube and iron stand	water and naphthalene
2. Determine the Melting Point of Biphenyl.	beaker, thermometer, Bunsen burner, tripod stand, wire gauze, glass stirrer, capillary tube and iron stand	water and biphenyl
3. Determine the Boiling Point of Acetone.	beaker, thermometer, Bunsen burner, tripod stand, wire gauze, glass stirrer, fusion tube, iron stand and capillary tube	water and acetone
4. Determine the Boiling Point of Benzene.		water and benzene

5. Determine the Boiling Point of Ethyl Alcohol.	beaker, thermometer, Bunsen burner, tripod stand, wire gauze, glass stirrer, fusion tube, iron stand and capillary tube	water and ethyl alcohol
6. Separate naphthalene from the given mixture of sand and naphthalene by sublimation.	beaker, thermometer, Bunsen burner, tripod stand, wire gauze, glass stirrer, fusion tube, iron stand and capillary tube	mixture of sand naphthalene
7. Separate the given mixture of alcohol and water by distillation.	china dish or watch glass, tripod stand, funnel, burner, sand bath and cotton	mixture of water and alcohol
8. Demonstrate that a chemical reaction releases energy in the form of heat.	round bottom distillation flask, thermometer, corks, water condenser, receiving flask, burner, iron stand, tripod stand, wire gauze, filter paper and funnel	Anhydrous copper sulphate, distilled water
9. Demonstrate sublimation using solid Ammonium Chloride	test tubes, test tube racks, thermometer, safety goggles test tubes, test tube holder, gas burner, matches, safety goggles	Ammonium chloride

Chapter 6:
Solutions

1. Prepare 100 cm^3 of 0.1M NaOH solution.	beaker, stirrer, volumetric flask and physical balance	distilled water and solid sodium hydroxide
2. Prepare 100 cm^3 of 0.1M Na_2CO_3 solution.	beaker, stirrer, volumetric flask and physical balance	distilled water and solid sodium carbonate
3. Prepare 250 cm^3 of 0.1M HCl solution.	beaker, stirrer, volumetric flask and physical balance	distilled water and concentrated hydrochloric acid
4. Prepare 250 cm^3 of 0.1M of oxalic acid solution.	beaker, stirrer, volumetric flask and physical balance	distilled water and oxalic acid
5. Prepare 100 cm^3 of 0.1M NaOH solution from the given 1M solution.	beaker, stirrer, volumetric flask and measuring cylinder	distilled water and 1M NaOH solution

6. Prepare 100 cm^3 of 0.01M Na_2CO_3 solution from the given 0.1M solution.	beaker, stirrer, volumetric flask and graduated cylinder	distilled water and 0.1M Na_2CO_3 solution
7. Prepare 100 cm^3 of 0.01M HCl solution from the given 0.1M solution.	beaker, stirrer, volumetric flask and measuring cylinder	distilled water and 1M HCl solution
8. Prepare 100 cm^3 of 0.01M oxalic acid solution from the given 0.1M solution.	beaker, stirrer, volumetric flask and measuring cylinder	distilled water and 0.1M oxalic acid solution
9. Prepare pure copper sulphate crystals from the given impure sample.	beakers, funnel, filter paper, stirrer, china dish, burner	impure copper sulphate and distilled water
10. Demonstrate that miscible liquids dissolve in each other and immiscible liquids do not.	8 small beakers, organic waste bottle, safety goggles	water, oil, ethanol,
11. Demonstrate that temperature affects solubility.	test tubes, burner, matches, test tube holder, test tube rack, stirring rod, safety goggles	sucrose, water

PRACTICALS	EQUIPMENT	CHEMICALS
Chapter 7: Electrochemistry		
1. Demonstrate the conductivity of different given solutions.	Dry battery cell with holder with two electrodes, beakers, stirrer test tube holder	distilled water, sugar, NaCl, vinegar, HCl, NaOH
2. Demonstrate a metal displacement reaction in aqueous medium.	copper wire, bulb with bulb holder test tube,	copper sulphate and iron strip or nail
Chapter 8: Chemical Reactivity		
1. Demonstrate that two elements combine to form a binary compound.	test tube, test tube holder, burner	Iron and sulfur
2. Demonstrate that compounds can be products of a decomposition reaction.	test tubes, one holed stopper with glass tube and rubber tubing attached, mortar and pestle, gas burner, matches, test tube holders, safety goggles	calcium carbonate, lime water (solution of calcium hydroxide)
3. Demonstrate that an element and a compound can react to form a different element and a different compound.	beakers, safety goggles	copper chloride, small piece of aluminium foil or copper sulphate and iron strip
4. Demonstrate that some chemical reactions absorb energy.	test tube, stirring rod	water, ammonium chloride, cold packs (ammonium nitrate and water)
Chapter 9: Chemical Equilibrium		
None	None	None
Chapter 10: Acids, Bases and Salts		
1. Identify sodium, calcium, strontium, barium, copper, potassium radicals by flame test.	platinum wire, watch glass, burner, matches	salt of each of sodium, calcium, strontium, barium, copper, potassium, concentrated HCl

2. Standardize the given NaOH solution volumetrically.	pipette, burette, funnel, conical flask, beaker	standard solution of HCl, solution of NaOH, phenolphthalein
3. Standardize the given HCl solution volumetrically.	pipette, burette, funnel, conical flask, beaker	standard solution of NaOH, solution of HCl, phenolphthalein
4. Determine the exact molarity of the Na_2CO_3 solution volumetrically.	pipette, burette, funnel, conical flask, beaker	standard solution of HCl, solution of Na_2CO_3, methyl orange
5. Determine the exact molarity of a solution of oxalic acid volumetrically.	pipette, burette, funnel, conical flask, beaker	standard solution of NaOH, solution of oxalic acid, phenolphthalein
6. Demonstrate that some natural substances are weak acids.	dropper, knife, test tubes, 2 test tube racks, beaker, gas burner, wire gauze, matches, dropper, safety goggles	citrus fruits, pH paper
7. Classify substances as acidic, basic or neutral	six 100-cm^3 beakers, red and blue litmus papers, safety goggles	red and blue litmus paper, 0.1% bromthymol blue, 0.1m solutions of various acids(hydrochloric, nitric, sulphuric, and acetic acids), bases (sodium carbonate, hydroxides of sodium, potassium, calcium and magnesium) and neutral substances (methanol, ethanol, sodium chloride and water)

Chapter 11:
Organic Chemistry

1. Identify aldehydes using Fehling's test and Tollen's test.	test tubes, test tube holder, test tube rack, burner, water bath, matches, dropper, safety goggles	Fehling's solution, Tollen's reagent, glucose solution, distilled water
2. Identify ketones using 2, 4-dinitrophenyl hydrazine test.	test tubes, test tube holder, test tube rack, burner, matches, dropper, safety goggles	fructose solution, 2,4-dinitrophenyl hydrazine solution, distilled water

3. Identify carboxylic acids using sodium carbonate test.	test tubes, test tube holder, test tube rack, burner, matches, dropper, safety goggles	acetic acid solution, solid sodium carbonate, distilled water
4. Identify phenol using Ferric Chloride test.	test tubes, test tube holder, test tube rack, burner, matches, dropper, safety goggles	phenol solution, freshly prepared ferric chloride solution, distilled water
Chapter 12: Hydrocarbons		
1. Identify saturated and unsaturated organic compounds by $KMnO_4$ test.	test tubes, test tube holder, test tube rack, dropper	cinnamic acid solution, $KMnO_4$ solution, distilled water
Chapter 13: Biochemistry		
1. Demonstrate that sugar decomposes into elements or other compounds.	China dish, burner, tripod stand, wire gauze, matches, spatula, safety goggles	sugar
Chapter 14: Atmosphere		
None	None	None
Chapter 15: Water		
1. Demonstrate the softening of water by removal of calcium ions from hard water.	2 test tubes and stoppers, beaker	distilled water, small bar of soap, sodium sulphate solution, calcium sulphate solution and sodium bicarbonate solution
Chapter 16: Chemical Industries		
None	None	None

LIST OF CHEMICALS

(Based on 20 students)

CHEMICALS	QUANTITY
Acetic acid	02 litre
Aluminium Foil	250 g
Ammonium Chloride	01 kg
Ammonium Nitrate	01 kg
Barium Chloride or any salt of Barium	01 kg
Bromothymol Blue	20 g
Calcium Carbonate	01 kg
Calcium Chloride or any salt of Ca	500 g
Calcium Hydroxides	500 g
Cinnamic Acid	100 g
Concentrated Hydrochloric Acid	01 litre
Copper Chloride or any salt of Cu	100 g
2,4-Dinitrophenyl Hydrazine	05 g
Distilled Water	50 litre
Ethanol	01 litre
Fehling's Solution	500 cm^3
Ferric Chloride	250 g
Fructose	250 g
Glucose	250 g
Iodine	100 g
Lime water	02 litre
Litmus solution	01 litre
Magnesium Hydroxides	500 g
Methanol	01 litre
Methyl Orange	10 g
Nitric acid	01 litre
Oil	01 kg
Oxalic Acid	250 g
Phenol Solution	01 litre
Phenolphthalein	10 g
Potassium Chloride or any salt of K	50 g
Potassium Hydroxides	500 g
Potassium Permanganate	500 g
Powdered Zinc	250 g
Silver Nitrate	25 g
Soap	05 bars

Sodium Bicarbonate	250 g
Sodium Carbonate	500 g
Sodium Chloride	2 kg
Sodium Hydroxide	500 g
Sodium Metal	100 g
Sodium Sulphate	500 g
Sulphuric Acid	1 litre
Strontium Chloride or any salt of Strontium	100 g
Sugar	500 g
Tollen's Reagent	500 cm^3
Vinegar	1 litre

LIST OF Equipment/Apparatus

(Based on 20 students)

Battery cells with two Electrodes	20
Beakers 50 cm^3	50
Beakers 100 cm^3	100
Beakers 250 cm^3	100
Beakers 500 cm^3	100
Blue Litmus Paper	01 packet
Bunsen Burners	20
Burettes	50
Capillary Tubes	Pack of 100
China Dishes	50
Conical Flasks (250 cm^3)	50
Corks	24 each of four different sizes
Cotton	01 roll
Delivery Tubes	30
Droppers	30
Filter Papers	01 packet
Forceps	20
Funnels	20
Fusion tubes	100
Glass Plates	20
Glass Stirrers	20
Graduated Cylinders 50 cm^3	20
Graduated Cylinders 100 cm^3	20
Graduated Flasks 100 cm^3	20
Graduated flasks 250 cm^3	20
Graduated flasks 1000 cm^3	10
Iron Stands (complete with heavy base)	20
Knives	10
Magnets	20
Match Boxes	20
Organic Waste Cans	20
Physical Balances	20
pH paper (1to 14)	10 packets

Pipettes (10 cm^3)	20
Platinum Wires	20
Red Litmus Paper	01 packet
Round Bottom Distillation Flasks	20
Rubber Tubing	25 m
Sand Baths	20
Spatulas (stainless steel)	20
Test Tube Holders	20
Test Tube Racks	20
Test Tubes	200
Thermometers (110ºC)	20
Tripod Stands	20
Watch Glasses	20
Water Condensers	20
Wire Gauzes	20