

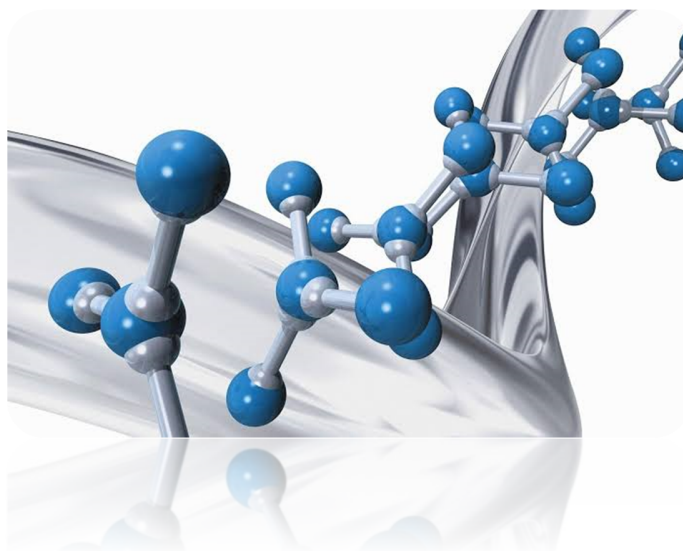
[LOYOLA COLLEGE KUNKURI]



[Annual Report-2019-20]

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[Department Of Chemistry]



**KUNKURI, DIST.-JASHPUR, CHHATTISHGARH (496225)**

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# "Department of Chemistry"

We are surrounded everyday by Chemistry. So what role does Chemistry really play in everyday life . Science has much discipline. Chemistry is one of them. It is one of the basic or fundamental sciences. And the knowledge of Chemistry is often called the central science because it is vital in the science of Physics and Biology. Chemical and their study famously known as Chemistry is an integrate part of life. It would be very interesting to understand a few things taking into account that we never have the time or patience to look upon it with this view. there is nothing without Chemistry everything we do in this subject and chemical reaction take when we breath, eat, and drink. We use chemical everyday and perform chemical reactions without thinking much about them. Chemistry is important because everything we do in chemistry. Even our body is made up of chemical.

Hence, Chemistry is inevitable from anything one does. It help to understand the composition, structure and changes of matters. It is a wide ranging science which is basically concerned with matter at the atomic and molecular scale. The important facts are synthesis, structure, microscopic, mechanisms properties, analysis and transformation of all types materials. Does a good Chemistry degree opens the door to inexpensive choice of careers and won't be diminished over time so it will remain a promising career part always.

The Chemistry Laboratory is designed to support and illustrate chemical concepts studied in the lecture portion of the course as well as to introduce important laboratory technique and encourage analytic thinking. the laboratory equipment refers to the various tools and equipment used by scientists working in the laboratory.

## **Vision**

To become an institute of academic excellence.

## **Mission**

- Impart quality education along with industrial exposure.
- To undertake research activities relevant to industrial and professional needs.
- Promote entrepreneurship and value added education that is socially relevant with economic benefits.

## Chemistry Lab

Chemistry is the scientific discipline involved with compounds composed of atoms, elements and molecules combinations of atoms their composition, structure, properties, behavior and changes they undergo during a reaction with other compounds Chemistry addresses topics such as how atoms and molecule interact via chemical bonds to form new chemical compounds. There are 4 type of chemical bond: covalent bonds in which compound share one or more electron.



Chemistry panels are groups of tests that are routinely ordered to determine a person's general health status. They help evaluate, for example; the body's electrolytes balance and or the status of several major body organs. The tests are performed on a blood sample usually drawn from a vein in the arm.

Chemistry is also the study of matters compositions structures and properties. Matter is essentially anything in the world that takes up space and has mass. Chemistry is sometimes called "the central science", because it bridges physics with other natural science, such as Geology and Biology.

The science that systematically studies the composition, properties and activity of organic and inorganic substance and various elementary forms of matter.

Physical Chemistry combines Chemistry with physics, Physical Chemists Study how matter and energy interact. Inorganic Chemistry studies materials such as metals and gases that do not have carbon as part of their makeup.



## DEPARTMENT OF CHEMISTRY INSTRUMENTS

S.NO.	INSTRUMENT NAME	NUMBER
1	DIGITAL SPECTROPHOTOMETER	1
2	MELTING POINT APPARATUS	1
3	ELECTRICAL WEIGHT BOX	1
4	DIGITAL CONDUCTIVITYMETER	1
5	H <sub>2</sub> S GAS APPARATUS	2
6	DISTILATION APPARATUS	1
7	AUTO-CUT-OFF DEVICE	1
8	ELECTRIC BURNER	2
9	PHYSICAL BALANCE	2
10	WATER BATH	2



## **GLASS & OTHER APPARATUS-**

<b>S. No.</b>	<b>Glass Apparatus</b>	<b>Other</b>
01	Beaker(500,250,100ml)	Tripod stand
02	Conical Flask (500,250,100ml)	Water bath
03	Burette	Starch indicator
04	Test tube	Filter paper
05	Measuring cylinder	Stop watch
06	Watch glass	Brush
07	Round Bottom flask	Test tube stand
08	Reagent bottle	Burette stand
09	viscometer	Spatula
10	Rod	Tripod stand
11	Cuvette	Desecrator
12	Chromatography Jar	Forceps
13	Stalagnometer	Test tube holder
14	China dish	Burner
15	Thermometer	Capillary tube
16	Dropper	Firefox

## **Contacts of communication**

<b>Designation</b>	<b>Name</b>	<b>Mo. No.</b>
Asst. Professor	Rakhee yadav	6261875654
Asst. Professor	Ashmita kujur	9752476698
Asst. Professor	Ilin kujur	8319767693
Lab Assistant	Anjali kansari	8770677352



## **Departmental Information**

*Details of programs offered by the department:*

<b>Program Level</b>	<b>Course</b>	<b>Duration in months</b>	<b>Intra Qualification</b>	<b>Medium of Instruction</b>	<b>No. of students admitted</b>
U.G.	B.Sc.	36	12th	Hindi /English	239

## **Teaching Faculty**

<b>Name</b>	<b>Paper-I</b>	<b>Paper-II</b>	<b>Paper-III</b>
Rakhee yadav	-	-	✓
Asmita kujur	-	✓	-
Ilin kujur	✓	-	-

## **Lab assistant**

<b>Name</b>	Anjali Kansari
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## **Student**

*No. of student in year wise- 2019-20*

<b>B.Sc.-I</b>	<b>B.Sc.-II</b>	<b>B.Sc.-III</b>
96	65	78

Total no of student	239
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*No. of outgoing students in year wise- 2019-20*

<b>B.Sc.-III</b>	<b>78</b>
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## Framework

- **Classes:** Admission of new students started from 01<sup>st</sup> July. And classes were beginning from next date of admission. And they get aware of schedule and different activities of the laboratory and syllabus also.
- **Lecture:** background, and theories. Lectures are used to expose the students to contemporary issues and the need for life- long learning in the appropriate societal context.



- **Class presentation:** Presentation are given to illustrate ideas and concept and also seminar given by students from effectively communicate.





- **Remedial classes:** The remedial class help the students and developing better understanding of the subject and clarifying their doubts that could not be taken during lecture and problem solving abilities.
- **Lab experimental work:** Laboratory work demonstrates how theory of Inorganic, Organic, and physical chemistry can be verified by experiments through interpretation of results.



- **Seminar**- In final, second and first year student have seminar in their curriculum. The students have select a recent and innovative topic and present in front of seminar coordinates department faculty and their class students. The seminar presentation assessed based on:
  - Topic selection
  - Presentation
  - Report preparation
- **Guest lecture-(MEGA CAREER SEMINAR-27<sup>th</sup> January 2020 By Sachin Yadav)**
- **Model & Assignment**- B.Sc.-(I,II,III)years are submitted
- **Tour** – we went to Ambikapur for educational tour in the month of October and also went to Mayali for educational tour under Environmental science for B.Sc. Ist year month of November.



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- **Science exhibition** – Organized in the month of December

- **Motivational classes**



- **Culture program:**

- Loyola Day 30<sup>th</sup> July
- Fresher party for all first year students ( August 2019).
- Teacher's Day 6<sup>th</sup> September
- We celebrated Christmas gathering (20<sup>th</sup> December 2019)

### **Subject Detail**

<b>Class</b>	<b>Paper-I</b>	<b>Paper-II</b>	<b>Paper-III</b>
<b>B.Sc.-I</b>	Inorganic Chemistry	Organic Chemistry	Physical chemistry
<b>B.Sc.-II</b>	Inorganic Chemistry	Organic Chemistry	Physical chemistry
<b>B.Sc.-III</b>	Inorganic Chemistry	Organic Chemistry	Physical chemistry

### **File Description**

## Test series

<b>Day/time</b>	<b>B.Sc.-I</b>
15/08/2019	UNIT TEST-01
25/09/2019	UNIT TEST-02
16/12/2019	UNIT TEST-03
23/1/2020	UNIT TEST-04
16/2/2020	UNIT TEST-05

<b>Day/time</b>	<b>B.Sc.-II</b>
22/08/2019	UNIT TEST-01
20/09/2019	UNIT TEST-02
10/12/2019	UNIT TEST-03
02/02/2020	UNIT TEST-04
18/02/2020	UNIT TEST-05

<b>Day/time</b>	<b>B.Sc.-III</b>
18/08/2019	UNIT TEST-01
22/09/2019	UNIT TEST-02
11/12/2019	UNIT TEST-03
15/02/2020	UNIT TEST-04
19/02/2020	UNIT TEST-05

## Practical Exam

<b>Date</b>	<b>Year</b>
22/02/2020	B.Sc.-I
10/02/2020	B.Sc.-II
21/02/2020	B.Sc.-III

## **Question paper - (B.Sc.-I,II,III) Year**

- **Quarterly Exam In month of October.**
  
- **Half yearly Exam In month of November.**
  
- **Model exam -6<sup>th</sup> January To 18<sup>th</sup> January 2020**

## **Teaching / learning process**

The following are the various student centric methods to enhance.

## **Course delivery methods**

- Classes
- Lectures
- Class presentations
- Tutorials
- Lab experimental work
- Written assignments
- Seminar
- Guest lecture
- Culture programs



Ferric Chloride	2x500 gm	Nil	
Alpha Naphthol	1x100gm	Nil	Nil
Dinitrophenyl Hydrazine	1x100gm	Nil	Nil
Lead dioxide	1x500gm	Nil	Nil
Oxalic acid	1x500gm	Nil	Nil
Nickel sulphate	1x500gm	Nil	Nil
Ammonium hydroxide	1x500ml	Nil	Nil
Silica Gel	2x500gm	Nil	Nil
Mercuric Chloride	1x100gm	Nil	Nil
Ethyl Alcohol	4x500ml	Nil	Nil
Potassium Iodide	2x100gm	Nil	Nil
Thermometer	9pc	Nil	Nil
Stalgmometer	10pc	Nil	Nil
<b>Chemical Name (1/10/2019)</b>	<b>Quantity</b>	<b>RATE</b>	<b>AMOUNT</b>
Sodium Mattel paraffin	1x200gm	Nil	Nil
Naphthalene	2x500gm	Nil	Nil
Barium Sulphate	2x500gm	Nil	Nil
Nickel Sulphate	1x500gm	Nil	Nil
Phenol	1x500gm	Nil	Nil
Bromine Water	1x500ml	Nil	Nil
Ammonium Hydroxide	1x500ml	Nil	Nil

# LOYOLA COLLEGE KUNKURI

## DEPARTMENT OF CHEMISTRY

Session – 2019-2020

### BSC 1<sup>st</sup> YEAR

HEAD OF DEPARTMENT (HOD)	-	RAKHEE YADAV
ASST.PROF.	-	ASMITA KUJUR
ASST. PROF.	-	ILIN KUJUR
LAB Assistant.	-	ANJALI KANSAR

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## **EXPERIMENT-LIST**

- 1 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound .( **Barium Chloride , Copper Sulphate** )
- 2 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound . ( **Manganese Chloride , Lead Acetate** )
- 3 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound .( **Ferric Chloride Barium Carbonate** )
- 4 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound . ( **Nickel Sulphate , Ammonium Chloride** )
- 5 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound . ( **Calcium Bromide , Aluminum Sulphate** )



- 6 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound . ( **Lead Acetate , Manganese Chloride** )
- 7 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound . ( **Silver Sulfate , Calcium Carbonate** )
- 8 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound . ( **Magnesium Nitrate , Copper Sulphate** )
- 9 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound . ( **Aluminum Sulfate , Nickel Nitrate** )
- 10 . To Identify Two Acid and Two Base Radicals in an Unknown Given Inorganic Compound . ( **Aluminum Chloride , Copper Sulphate** )
- 11 . To Determine the Element and Functional Group in the Unknown Given Organic Compound . ( **Resorcinol** )
- 12 . To Determine the Element and Functional Group in the Unknown Given Organic Compound . ( **Oxalic Acid** )
- 13 . To Determine the Element and Functional Group in the Unknown Given Organic Compound . ( **Urea** )
- 14 . To Determine the Element and Functional Group in the Unknown Given Organic Compound . ( **Ethyl Alcohol** )
- 15 . To Determine the Element and Functional Group in the Unknown Given Organic Compound . ( **Nitrobenzene** )
- 16 . To Determine the Element and Functional Group in the Unknown Given Organic Compound . ( **Acetaldehyde** )
- 17 . To Determine the Element and Functional Group in the Unknown Given Organic Compound . ( **Acetone** )
- 18 . To Determine the Element and Functional Group in the Unknown Given Organic Compound . ( **Glucose** )
- 19 . To Determine the Percentage Composition of a Binary Mixture By **Viscosity Method**.
- 20 . To Determine of **Surface Tension** By Drop Number Method .

## REQUIRMENTS-

S.No.	Requirement	Amount
1	Beaker	Nil
2	Tripod stand	Nil
3	Desecrater	Nil
4	Funnel	Nil
5	Filter paper	50.00
6	Water bath	Nil
7	Burner	Nil
8	Test- tube	Nil
9	Ignition tube	110.00
10	Litmus paper	Nil
11	Watch glass	Nil
12	Brush	Nil
13	Conical Flask	Nil
14	Round bottom flask	Nil
15	China-dish	Nil
16	Test-tube stand	Nil
17	Holder	Nil
18	Test-Tube stand	Nil
19	Thermometer	Nil
20	Pipette	Nil
21	Dropper	240.00
22	Spatula	288.00
23	Viscometer	Nil
24	Stalagmometer	Nil
25	Stop Watch	Nil

## CHEMICAL-

S.No.	Chemical	Amount
1	Lead Acetate	Nil
2	Potassium Chromate	Nil
3	Manganese Dioxide	Nil
4	Ethanol	390.00
5	Oxalic acid	425.00
6	Potassium dichromate	Nil
7	Copper sulphate	Nil
8	Con. Sulphuric acid	366.00
9	Con. Hydrochloric acid	Nil
10	Con. Nitric acid	510.00

11	Acetone	307.00
12	Methyl Orange	Nil
13	Bromine Water	Nil
14	Potassium Ferro cyanide	Nil
15	Mercuric Chloride	Nil
16	Acetic Acid	Nil
17	Sodium Hydroxide	513.00
18	Cerric Ammonium Nitrate	Nil
19	Ferric chloride	Nil
20	Alpha Naphthol	Nil
21	Acetic Acid	Nil
22	Ammonium Chloride	684.00
23	Ammonium Oxalate	Nil
24	Ferrous Shulphate	488.00
25	Potassium Iodide	Nil
26	Nessler's Reagent	Nil
27	Silver Nitrate	885.00
28	Sodium Chloride	Nil
29	Potassium Hydroxide	Nil
30	Ferrous Sulphide Sticks	1094.00
31	Ammonium Carbonate	Nil
32	Piece of Sodium	Nil

<b>S.no</b>	<b>instrument</b>	<b>Amount</b>
1	Malting Point Apparatus	Nil
2	H <sub>2</sub> S Gas Apparatus	Nil
3	Distillation Apparatus	Nil

**LOYOLA COLLEGE KUNKURI**  
**DEPARTMENT OF CHEMISTRY**  
**SESSION – 2019-2020**

**BSC- 2<sup>nd</sup> YEAR**

HEAD OF DEPARTMENT (HOD)	-	RAKHEE YADAV
ASST.PROF.	-	ASMITA KUJUR
ASST. PROF.	-	ILIN KUJUR
LAB TECH.	-	ANJALI KANSARI

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## **EXPERIMENT-LIST**

- 1) Determination of Acetic acid in The Commercial **Vinegar Using NaOH.**
- 2) To prepare **Green Leaf Pigment.**
- 3) Separation of a Mixture of **Phenylalanine And Glycerin By Ascending Paper Chromatography.**
- 4) To Determination the Amount of Base in **Ant – Acid Tablet Using Hcl.**
- 5) Determination The Amount of Copper By the use of **Sodium Thiosulphate.**
- 6) Determination of The Transition Temperature **MnCl<sub>2</sub>.4H<sub>2</sub>O or SrBr<sub>2</sub>.2H<sub>2</sub>O Of Thermometric Method.**
- 7) To Determine the Functional Group And Specific Group in the Given Compound. (**Alpha Naphthol**)
- 8) To Determine the Functional Group And Specific Group in the Given Compound. (**Oxalic Acid**)
- 9) To Determine the Functional Group And Specific Group in the Given Compound. (**Glucose**)

- 10) To Determine the Functional Group And Specific Group in the Given Compound. ( **Aniline** )
- 11) To Determine the Functional Group And Specific Group in the Given Compound. ( **Acetone** )
- 12) To Determine the Functional Group And Specific Group in the Given Compound. ( **Urea** )
- 13) To Determine the Functional Group And Specific Group in the Given Compound. ( **Ethyl Alcohol** )
- 14) To Determine the Functional Group And Specific Group in the Given Compound. ( **Benzene** )
- 15) To Determine the Functional Group And Specific Group in the Given Compound. ( **Sulphanilic Acid** )

## REQUIRMENTS-

S.No.	Requirement	Amount
1	Beaker	Nil
2	Tripod stand	Nil
3	Desecrater	Nil
4	Funnel	Nil
5	Filter paper	50.00
6	Water bath	Nil
7	Burner	Nil
8	Test- tube	Nil
9	Ignition tube	110
10	Litmus paper	Nil
11	Watch glass	Nil
12	Brush	Nil
13	Flask	Nil
14	Round bottom flask	Nil
15	China-dish	Nil
16	Forceps	Nil
17	Holder	Nil
18	Capillary tube	Nil
19	Thermometer	Nil
20	Burette	Nil
21	Pipette	Nil
22	Dropper	240.00
23	Spatula	288.00

## CHEMICAL-

S.No.	Chemical	Amount
1	Potassium Chromate	Nil
2	Copper Sulphate	Nil
3	Con. Ammonia	Nil
4	Ethanol	390.00
5	Oxalic acid	425.00
6	Potassium dichromate	Nil
7	Ant-Acid Tablet	Nil
8	Con. Sulphuric acid	366.00
9	Con. Hydrochloric acid	Nil
10	Con. Nitric acid	510.00
11	Acetone	307.00
12	Iodine crystal	Nil
13	Phenol	732.00
14	Bromine water	Nil
15	Sodium hydroxide	1026.00
16	Ceric ammonium nitrate	Nil
17	Ferric chloride	Nil
18	Alpha naphthol	Nil
19	NaCl	Nil
20	Copper Turning	Nil
21	2,4 Dinitrophenyl-Hydrazine	Nil
22	Benzene	330.00
23	Methanol	Nil
24	Piece of Sodium	Nil
25	Sulphanilic Acid	Nil
27	Aniline	Nil
28	Urea	Nil
29	Theo-Urea	Nil

S.no	INSTRUMENT NAME	AMOUNT
1	Distillation Apparatus	Nil

**LOYOLA COLLEGE KUNKURI**  
**DEPARTMENT OF CHEMISTRY**  
**SESSION -2019-2020**

**BSC 3<sup>rd</sup> YEAR**

HEAD OF DEPARTMENT (HOD)	-	RAKHEE YADAV
ASST.PROF.	-	ASMITA KUJUR
ASST. PROF.	-	ILIN KUJUR
LAB TECH.	-	ANJALI KANSARI

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## **EXPERIMENT-LIST**

Object 1 – To Synthesize **Nickel Di-Methylglyoxime** [  $\text{Ni}(\text{dmg})_2$  ] .

Object 2 – Estimation of **Barium as Barium Sulphate** .

Object 3 – Estimation of **Copper as Cuprous Thiocyanate**.

Object 4 – To Synthesize **Iodoform** from **Acetone** or **Ethyl Alcohol** by **Aliphatic Electrophilic Substitution**.

Object 5 – To Synthesize **2,4,6-Tribromophenol** from **Phenol** by **Aromatic Electrophilic Substitution**.

Object 6 – To Separate the Given Organic Mixture and its Identification.( **Oxalic acid** ,**Benzoic acid**)

Object 7 – To Separate the Given Organic Mixture and its identification.(**Urea** , **Naphthalene**)

Object 8 – To Separate the Given Organic Mixture and its identification.(**Acetone** ,**Ethyl Alcohol**)

Object 9 – To Separate the Given Organic Mixture and its identification.(**Glucose** ,**Theo-urea**)

Object 10 – To Separate the Given Organic Mixture and its identification.( **Nitrobenzene, Benzene**)

Object 11 – To Separate the Given Organic Mixture and its identification.(**Salicylic acid, Resorcinol**)

Object 12 – To Separate the Given Organic Mixture and its identification.(**Ethyl acetate ,Aniline**)

Object 13 – To Verify Beer's Lambert law by Using a Spectrophotometer for colored solution of a Substance (**K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> or K<sub>2</sub>MnO<sub>4</sub>**).

Object 14 – To Determine the Strength of Given acid (approx 0.1M HCl ) by Titrating it Against **NaOH Solution By Conductivity Method**.

Object 15 – To Synthesize **Trans-Potassium Dioxalato Diaqua Chromate(3)ion**  $K_2[Cr(C_2O_4)_2(H_2O)_2]$ .

Object 16 – To Synthesize **Tetra Amine Cupric Sulphate**  $[Cu(NH_3)_4SO_4] \cdot H_2O$ .

## **REQUIREMENTS-**

<b>S.No.</b>	<b>Requirement</b>	<b>Amount</b>
1	Beaker	Nil
2	Tripod stand	Nil
3	Desecrater	Nil
4	Funnel	Nil
5	Filter paper	50.00
6	Water bath	Nil
7	Burner	Nil
8	Test- tube	Nil
9	Ignition tube	110.00
10	Litmus paper( Blue/Red)	Nil
11	Watch glass	Nil
12	Brush	Nil
13	Flask	Nil
14	Round bottom flask	Nil
15	China-dish	Nil
16	Test-tube stand	Nil
17	Spatula	288.00
18	Holder	Nil
19	Dropper	240.00



## **CHEMICAL-**

<b>S.No.</b>	<b>Chemical</b>	<b>Amount</b>
1	Nickel sulphate	Nil
2	Dimethyl glyoxime	Nil
3	Con. Ammonia	Nil
4	Ethanol	1070.00
5	Oxalic acid	425.00
6	Potassium dichromate	Nil
7	Copper sulphate	Nil
8	Con. Sulphuric acid	732.00
9	Con. Hydrochloric acid	Nil
10	Con. Nitric acid	510.00
11	Acetone	614.00
12	Iodine crystal	Nil
13	Phenol	732.00
14	Bromine water	Nil
15	Potassium permanganate	Nil
16	Ferric Nitrate	Nil
17	Chloroform	Nil
18	Sodium hydroxide	513.00
19	Cerric ammonium nitrate	Nil
20	Ferric chloride	Nil
21	Alpha Naphthol	Nil
22	Salicylic Acid	594.00
23	Benzoic Acid	Nil
24	Glucose	292.00
25	Benzene	330.00
26	Ethyl Acetate	Nil
27	Aniline	Nil
28		

<b>S.No.</b>	<b>Instrument</b>	<b>Amount</b>
1	Spectrophotometer	Nil
2	Conductivity- meter	Nil
3	Distillation Apparatus	Nil