

**HEMCHANDRACHARYA NORTH GUJARAT ,UNIVERSITY,
PATAN. 384 265**

From :
Dr. M. P. Brahmbhatt
Chairman, B.Sc.Sem-VI
& Co-Chairman Dr.B.B.Patel
Chemistry Practical Examination
March/April : 2018

Dear Colleague,

It gives me a great pleasure to work with you. You will be conducting the B.Sc. Sem-VI Chemistry Practical Examination March/April : 2016 along with colleges as mentioned in the program sent to you. I must thank you for spontaneous Co-operation in conducting the practical examination.

1. Please find the enclosed here with the instruction to examiners, Practical exercises to be set and other relevant papers as settled as the paper setter's meeting. The slip to be set and other forms will be sent (in seal covers) directly by the university to the principals at the respective centers. Examiners are requested to take delivery of these from the principals. If any slip is missing or the number of the copies is not sufficient the question papers may please to dictate from your copy. The examiners are requested to go through the slip and the corrected slips to be set if any mistake found in the slip. The unused slips are to be returned to the University without fail.
2. The examiners are particularly requested to go through these papers and to bring to the notice of the undersigned as early as possible, point which require clarification.
3. Your attention is particularly drawn to the following.
 - (A) The first names examiner is the senior examiner of the group, it is expected that the colleagues (Other examiner of the group) will give whole hearted co-operation to the first named examiner. It will be responsibility of the first named examiner to give general guidance to his colleagues for the proper conduct of the examination. He is responsible to ensure that the arrangements at the center are properly made and the programmed or the examination works out according to the schedule. He is responsible to send the sub division of the batch and the distribution of the practical work in sufficient number of copies (for the notice board) will in advance for the information of the candidates and colleagues.
 - (B) The colleagues where practical examination are to be held have been requested to supply calibrates apparatus including burettes, pipettes, measuring flask, gram and fractional weights to be used by the candidates, experts and examiners. All the Electronic balance should be in perfectly working condition. A necessary certificate should be obtained from the laboratory supervisor before the commencement of the examination.

- (C) Examiners should check and mutually verify the marks on the answer books as against these entered in the mark sheet. The mark sheets should be signed by all the examiners should check and mutually verify the marks on the answer books as against these entered in the mark sheet. The mark sheets should be signed by all the examiners in the group.
- (D) The mark sheets along with the marks verification certificate and attendance reports in duplicate should be sent by registered A.D. post to the controller of examinations, Hemchandracharya North Gujarat University, Rajmahel road, Post Box No.21, Patan,(NG). 384265. Immediately after the examination of the batch is over. If the number of the batch does not end with the sheet, all the completed sheets should be sent. In no case, the mark sheets are to be cut. Send one copy of attendance report to the university without fail.
- (E) Examiners should go round and initial the volumetric readings, gravimetric weights, dry tests in inorganic qualitative analysis, type of the organic mixture. M.P. and B.P. and the reading in organic estimation and physico-chemical exercise.
- (F) The answer books are to be sent directly, either center wise or from the last centre so as the reach the University before a meeting of setting marks either by prepaid home delivery railway parcel by the passenger train and the rail receipt should be immediately sent to the controller of Examinations by Registered Post A.D. or home over by your own arrangement.
- (G) The expenditure incurred on sending the mark sheets and the answer books will be shared by the colleagues concerned.
- (H) The examiners from each centre should submit a joint report on the work of the candidates examined. This report must be submitted at the final meeting without fail.
- (I) Examiner attending the final meeting shall also bring with him or her the distribution scheme of the materials, the exercises sent and the report of the expert assistant. These will be submitted to the chairman of the meeting.
- (J) Examiners not attending the final meeting shall authorize in writing to their colleague attending this meeting to settle the results. If they choose they may sent the stamped and signed remuneration bill, T.A. & D.A. bills (duly completed) to the chairman will fill in the remuneration amount and submit these bills to the university authorities for the necessary action.
- (K) The dignity of the University Examination should be observed and born in mind. No outsider should enter the laboratory and experts. Working place candidate are not allowed to leave the laboratory without prior and specific permission.
- (L) The following are required to be brought at the final meeting of setting the results.

- a) Laboratory supervisors certificate for the calibration of the apparatus etc.
 - b) Letter of authority from the co-examiners for setting the results.
 - c) All the reports of the expert assistants.
 - d) Stamped and signed remuneration bill forms.
 - e) Stamped and signed T.A. & D.A. bill forms dully and correctly completed.
 - f) A short joint report on the work of the candidates at the respective centers.
4. The examiners who have to attend the final meeting of setting the result will informed about the meeting by the university or by the chairman.
 5. The receipt of these papers must be invariably acknowledged. In order to avoid inconvenience you are requested to write directly to the principals of the college for your loading and Boarding.

Your co-operation in the smooth conduct of examination will be appreciated.

Thanking you,

Sincerely yours,

Dr. M. P. Brahmhatt
Chairman, B.Sc.Sem-VI
Chemistry Practical Examination
March/April : 2018

Enclosures :

1. Address of the chairman
2. General instruction to examiners
3. Division of batch & the list. For the practical's to candidates.
4. Entry of Mark sheet.
5. Assignment of marks.
6. Inorganic exercise (qualitative)
7. Organic exercise(Estimation and preparation)
8. Physico Chemical exercise.

Division of Batch and Distribution of Practical work

Candidates of Each Batch are to be divided into following Groups

(B.Sc. Sem-VI, Chemistry)

Day & Time	Group A	Group B	Group C
1st Day			
10.0 am to 1.30 pm	Inorganic Qualitative	Organic Estimation and Preparation	Physico chemical
2.30 pm to 6.0 pm	Physico chemical	Inorganic Qualitative	Organic Estimation and Preparation
2nd Day			
10.0 am to 1.30 pm	Organic Estimation and Preparation	Physico chemical	Inorganic Qualitative
2.30 pm to 6.0 pm	Viva-Voce Inorganic, Organic & Physical	Viva-Voce Inorganic, Organic & Physical	Viva-Voce Inorganic, Organic & Physical

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B.Sc. Sem-6, Chemistry Practical Examination, March/April-2018

Division of Batch and the Distribution of Practical work.

Center :.....

Place :.....

Date	Candidate No.	Group-A	Group-B	Group-C

INSTRUCTION FOR THE STUDENTS :

1. The candidates are required to remain present at least 15 minutes before the commencement of the examination.
2. Candidates should bring with them.
 - a. University examination fee receipt

- b. Certified Laboratory Journals of the terms
- c. Platinum wire
- d. Semi micro kit
- e. Duster
- f. Match box
- g. Practical book
- h. Calculator

IMPORTANT

- (1) Marks on slip may be corrected if required.
- (2) First named examiner is required to send following information directly to Chairman without fail, just after completing the examination at the centre.

Name of the centre	Batch No	No of student called for examination	No of student Present	No of student Present out of Turn.	Total No of Student Examined
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General instruction for the Examiners.

- (i) The first named examiner should insure that the arrangement at centre of examination is properly made before the examination of each batch commence. Examiners are expected to reach a day earlier at the centre to make necessary preparations for practical examinations. Candidates in every batch are to be divide in to three batch groups viz A,B & C equal for the purpose of the examination. The university numbers of these groups along with the scheme of distribution of the work amongst the group should arranges to be put up two days before commencement of the examination. This should be achieved by previously communicating the same to the principals of the college concerned. The first named examiner is responsible for this task. However in absence of first named examiner the second named examiner will arrange the same.
- (ii) The practical examination will be conducted as under.

The examination consists of four (4) experiments to be completed in 14 hours (2 days), 7 hours each day. On each day the examination being at 10.0 a.m. and continue up to 6.00 pm with a break (recess) of one hour from 1.30 p.m. to 2.30 p.m.

(iii) The exercise and the total marks are as under.

No	Exercise	Marks
1	Inorganic Qualitative	50
2	Inorganic viva voce	13
3	Organic Estimation	25
4	Organic Preparation	25
5	Organic viva voce	13
6	Physico chemical	50
7	Physical viva voce	14
8	Journal	10
9	Total	200

Candidates may be allowed their own books or manuscripts (Xerox, Cyclostyled or printed) but not containing data or results. Laboratory journals should be collected before the examination commences. The standard text books on quantitative, qualitative-inorganic and organic, physico chemical exercise should be made available to the candidates when and as required during the examination.

(3) Entry of Marks in the distribution forms and mark sheet.

- (i) Marks will be entered on the form of distribution scheme under version heads according to the marking scheme.
- (ii) Separate marks will be assigned as above table.
- (iii) These marks will be entered clearly at the top of the answer books concerned either in red blue pencil or red ink with signature of examiner, the answer books of all above exercise will be kept separately and not to be tied together.
- (iv) In the mark sheets the marks must be entered in the order given below.

Inorganic Qualitative	Organic Preparation	Organic Estimation	Physico chemical	Inorganic viva	Organic viva	Physico viva	Journal	Total
I	II	III	IV	V	VI	VII	VIII	IX
50	25	25	50	13	13	14	10	200

- (v) For examining a candidate out of turn please refer to the instruction to chairman and fill report in form supplied by the university. If any candidate whose number is not in the list reported to you for examination should be instructed to apply through the principal of his/her college. The application duly recommended by the principal and laboratory supervisor should be taken into consideration and the candidates should be

provisionally permitted to appear. The report of such candidates should be made to controller of examination and the chairman. The assessed answer books should be separately and mark sheet be separately filled in and dispatch/handle over to the controller of examination.

Date : 05,MARC, 2018

Dr. M. P. Brahmbhatt
Chairman, B.Sc.Sem-VI
Chemistry Practical Examination
March/April : 2018

Instruction and Marking scheme for examiners

INORGANIC EXERCISES

B.Sc. Sem-VI

Inorganic Qualitative Exercise (Semi micro method)

➤ **Points to remember**

- 1) Test the purity of the salts before mixing if any doubt.
- 2) Prepare atleast 15 to 20 deferent mixtures for each bach.
- 3) Please do not repeat the same mixture more then one candidates in group A-B-C.
- 4) Add (10 to 15 % by weight) Nitrate/Nitrate or Bromide/Iodide, Just before distribution.
- 5) Use (10% by weight) Na or K salt of Arsenite, Arsenate or/and Chromate.
- 6) In case particular salt is not available for particular mixture then exchange the cations and anions accordingly.
- 7) Instruct the candidate to complete to dry test within 30 minutes before proceeding to the wet test.
- 8) Ask the candidates to take the signature of the examiner concered on the cations and anions detected from the dry test and then allow the candidate to proceed for the wet test.
- 9) Carry out draw system for distribution.
- 10) Partly soluble or water insoluble mixture contain six radicals should be given for the analysis.

➤ **Assignment of marks.**

No.	Ex	Marks
1	Dry and preliminary test with proper iterance	08
2	Each radical systematically detected and confirmed (6each)	36
3	Systematic presentation of the work	06
	Total	50

➤ **List of Inorganic Mixture.**

No.	I	gm.	II	gm.	III	gm.	IV	gm.	T.No.
1	CuCO ₃	13	CdSO ₄	10	H ₃ BO ₃	06	K ₂ CO ₃	14	
2	MnCO ₃	25	AlPO ₄	15	ZnS	15			
3	Pb(NO ₃) ₂	15	MgCO ₃	25	KNO ₂	15			
4	Zn ₃ (PO ₄) ₂	20	MnSO ₄	15	NaHSO ₃	10			
5	NiCl ₂	13	CoCO ₃	12	Sr(NO ₃) ₂	21			
6	Na ₃ AsO ₃	15	Na ₃ AsO ₄	20	AlPO ₄	15	Na ₂ CO ₃	10	
7	SnCl ₂	20	Bi(NO ₃) ₃	24	CuCO ₃	17			
8	Ba(NO ₃) ₂	26	NaNO ₂	07	MgCO ₃	20	NaNO ₃	05	
9	FeSO ₄	14	AlPO ₄	15	K ₂ CrO ₄	10			
10	KCl	08	KBr	08	KI	06	MgCO ₃	15	
11	NiPO ₄	18	CoCO ₃	12	Na ₃ AsO ₄	20			
12	MgSO ₄	20	ZnO	08	ZnS	09	NaHSO ₃	10	
13	Ba(NO ₃) ₂	30	SrCl ₂	20	Ca ₃ (PO ₄) ₂	20			
14	Ca ₃ (PO ₄) ₂	15	MgCO ₃	15	K ₂ CrO ₄	10			
15	CaCO ₃	13	BaCl ₂	20	KBr	15			
16	FePO ₄	15	Al ₂ (SO ₄) ₃	30	Na ₃ AsO ₃	20			
17	Sb ₂ S ₃	15	Bi ₂ (CO ₃) ₂	25	NH ₄ Br	10	Sb ₂ O ₃	15	
18	ZnCO ₃	15	AlPO ₄	15	NaHSO ₃	10			
19	Pb(NO ₃) ₂	17	Mg ₃ (PO ₄) ₂	26	KNO ₂	09	KNO ₃	05	
20	Ni ₃ (PO ₄) ₂	26	ZnS	15	KI	10			
21	CaCl ₂	15	BaCO ₃	25	KBr	15			
22	NiCl ₂	10	CoCO ₃	10	NH ₄ Br	15			
23	Bi ₂ O ₃	20	HgCl ₂	10	NH ₄ Br	15	(NH ₄) ₂ SO ₄	10	
24	MnCO ₃	20	K ₂ SO ₄	20	Na ₃ AsO ₄	15	Na ₂ SO ₄	15	
25	ZnS	10	MnSO ₄	12	NaHSO ₃	10			
26	CoCO ₃	12	Zn ₃ (PO ₄) ₂	15	NaHSO ₃	12			
27	FePO ₄	12	AlPO ₄	15	(NH ₄) ₂ SO ₄	12	H ₃ BO ₃	06	
28	CuSO ₄	16	Bi(NO ₃) ₃	20	NaNO ₂	15			
29	CrCl ₃	08	FePO ₄	15	Al ₂ (SO ₄) ₃	25			
30	AgNO ₃	05	CuCO ₃	15	KNO ₂	10	KNO ₃	05	
31	CuCl ₂	15	BaCO ₃	20	KBr	15	KCl	08	
32	ZnCO ₃	15	Na ₃ AsO ₃	20	K ₃ PO ₄	20			
33	Ni ₃ (PO ₄) ₂	20	CoCO ₃	20	ZnS	10			
34	FeSO ₄	15	CuS	10	Bi ₂ (CO ₃) ₂	20			
35	Ba(NO ₃) ₂	15	SrCO ₃	15	KNO ₃	15	H ₃ BO ₃	06	
36	MnCO ₃	20	Ba(NO ₃) ₂	25	KNO ₂	10	KNO ₃	10	
37	ZnCO ₃	12	BaCO ₃	20	Na ₃ PO ₄	15	Na ₃ AsO ₃	10	
38	KCl	15	KBr	10	KI	05	ZnS	15	
39	Cu ₃ (PO ₄) ₂	10	Na ₂ HPO ₄	05	Na ₃ AsO ₃	05	H ₃ BO ₃	05	
40	Sb ₂ S ₃	15	Bi(NO ₃) ₃	20	KBr	15	KNO ₃	10	
41	AlPO ₄	15	ZnO	08	MnCl ₂	13	ZnS	08	
42	CuSO ₄	15	CdCl ₂	08	MgCO ₃	20			
43	Al ₂ (SO ₄) ₃	30	Zn ₃ (PO ₄) ₂	15	NaHSO ₃	15			
44	As ₂ O ₃	12	SnCl ₂	08	NiSO ₄	15	NH ₄ Cl	15	
45	CaCO ₃	15	CoS	18	Sr ₃ (PO ₄) ₂	25			
46	CaCO ₃	25	KNO ₃	15	KBr	15	KNO ₂	10	

Instruction and Marking scheme for examiners

INORGANIC EXERCISES

B.Sc. Sem-VI

Inorganic Qualitative Exercise

Inorganic Mixture

Hem.N.G.U. B.Sc. Sem-VI

Inorg-CH-1

Ex. No :- 1

Marks - 50

Aim : A qualitative analysis of given inorganic mixture.

In a container bearing your table number, you are given a mixture of inorganic compounds containing six radicals only.

Perform a systematic semi-micro qualitative analysis of the mixture. Dry test should be performed before starting with wet tests. Perform spot test of positive radicals detected by you. Present the result in a systematic form.

Radicals Detected :

No	Radicals	No	Radicals
1		4	
2		5	
3		6	

Instruction and Marking scheme for examiners

ORGANIC EXERCISES

Organic Synthesis

B.Sc. Sem-VI

No.	Synthesis Name	Slip No	Requirment	M.P./B.P.
1	Aspirin	1	(1.) Salicylic acid <u>5.0</u> grams. (2.) Acetic anhydride <u>10</u> ml. (3.) Conc. H ₂ SO ₄ <u>4-5</u> drops. (4.) Alcohol <u>15</u> ml.	128-135
2	Acetanilied	2	(1.) Aniline <u>5.0</u> ml (5.0 grams). (2.) Acetic anhydride <u>7.0</u> ml.	
3	m-Dinitrobenzene	3	(1.) Nitrobenzene <u>5.0</u> ml (6.0 grams). (2.) Fuming HNO ₃ <u>5.0</u> ml. Conc. H ₂ SO ₄ <u>7.0</u> ml.	
4	p-Nitroacetanilide	4	(1.) Acetanilide <u>5.0</u> grams). (2.) Glacial acetic acid <u>5.2</u> ml. (3.) Conc. H ₂ SO ₄ and HNO ₃ .	
5	2,4,6 tribromo aniline	5	(1.) Aniline <u>5.0</u> grams. (2.) Glacial acetic acid <u>20.0</u> ml. (3.) Bromine solution (8 ml Br ₂ + 20.0 ml Glacial Acetic acid). (4.) Crushed Ice.	
6	Dibenzal acetone	6	(1.) Benzaldehyde <u>5.0</u> ml. (2.) 10% NaOH _(aq) <u>10.0</u> ml. (3.) Acetone <u>20.0</u> ml. (4.) Ethyl alcohol <u>40.0</u> ml	

Organic Synthesis-1

Acetylation

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-2

Ex. No :- 1

Marks - 25

Aim : Preparation of Aspirin [Acetyl salicylic acid] from Salicylic acid.

Requirements :

- (1.) Salicylic acid 5.0 grams. (3.) Conc. H₂SO₄ 4-5 drops.
(2.) Acetic anhydride 10 ml. (4.) Alcohol 15 ml.

Organic Synthesis-2

Acetylation

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-3

Ex. No :- 2

Marks - 25

Aim : Preparation of Acetanilid from Aniline.

Requirements :

- (1.) Aniline 5.0 ml (5.0 grams).
(2.) Acetic anhydride 7.0 ml.

Organic Synthesis-3

Aromatic S.E. (Nitration)

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-4

Ex. No :- 3

Marks - 25

Aim : Preparation of m-DinitroBenzene from Nitrobenzene.

Requirements :

- (1.) Nitrobenzene 5.0 ml (6.0 grams).
- (2.) Fuming HNO₃ 5.0 ml.
- (3.) Conc. H₂SO₄ 7.0 ml.

Organic Synthesis-4

Aromatic S.E. (Nitration)

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-5

Ex. No :- 4

Marks - 25

Aim : Preparation of p-Nitroacetanilide from Acetanilide.

Requirements :

- (1.) Acetanilide 5.0 grams).
- (2.) Glacial acetic acid 5.2 ml.
- (3.) Conc. H₂SO₄ and HNO₃ .

Organic Synthesis-5

Aromatic S.E. (Halogenation)

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-6

Ex. No :- 5

Marks - 25

Aim : Preparation of 2,4,6 Tribromo Aniline from Aniline.

Requirements :

- (1.) Aniline 5.0 grams.
- (2.) Glacial acetic acid 20.0 ml.
- (3.) Bromine solution (8 ml Br₂ + 20.0 ml Glacial Acetic acid).
- (4.) Crushed Ice.

Organic Synthesis-6

Aromatic S.E. (Dehydration)

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-7

Ex. No :- 6

Marks - 25

Aim : Preparation of Dibenzal Acetone from Benzaldehyde.

Requirements :

- (1.) Benzaldehyde 5.0 ml.
- (2.) 10% NaOH_(aq) 10.0 ml.
- (3.) Acetone 20.0 ml.
- (4.) Ethyl alcohol 40.0 ml

Organic Estimation-1

Ascorbic acid

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-8

Ex. No :- 7

Marks - 25

Aim : You are given a sample of Ascorbic acid determine the % purity of Ascorbic acid.

Requirements :

1. Ascorbic acid (As a sample)
2. 1.0 N H_2SO_4
3. 0.1 N I_2 solution.
4. 0.1 N $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ solution
5. 1 % Starch solution (Fresh)

Organic Estimation-2

Aspirin

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-9

Ex. No :- 8

Marks - 25

Aim : You are given a sample of Aspirin, determine the % purity of Aspirin.

Requirements :

1. Aspirin (As a sample)
2. 0.5 N NaOH solution
3. 0.5 N HCl solution.
4. Phenolphthalein.

Organic Estimation-3

Amide

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-10

Ex. No :- 9

Marks - 25

Aim : You are given a sample of Acetamide, determine the amount of Acetamide.

Requirements :

- (1.) Acetamide (As a sample)
- (2.) 1.0 N NaOH solution
- (3.) 0.1 N HCl solution.
- (4.) Phenolphthalein.

Organic Estimation-4

Ester

Hem.N.G.U. B.Sc. Sem-VI

Org-CH-11

Ex. No :- 10

Marks - 25

Aim : You are given a sample of Ester, determine the amount of Ester.

Requirements :

- (1.) Ester (As a sample)
- (2.) 1.0 N NaOH solution
- (3.) 0.1 N HCl solution.
- (4.) Phenolphthalein.

Instruction and Marking scheme for examiners

PHYSICO CHEMICAL EXERCISES

B.Sc. Sem-VI

General Instruction

- (1) Candidates has to perform the exercise assigned to him , If candidate has not performed the experiment given to him and on that account wants a change he may be given change, the examiner will verify by reference to the journal of this candidate has not performed an experiment of the type given at the examination.
- (2) Physico chemical exercise will be given to the candidate by draw system.
- (3) Any one exercise will be given from section A or B. About ten physico chemical exercises will be included for per subdivided batch of ten candidates or according to the strength of the batch the exercises can be appropriated adjusted as per ratio and then carry out draw.
- (4) Do not repeat any of the above exercises in the batch as for as possible.
-

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -12

Ex. No :- 1

Marks - 50

Potentiometry-1

Aim :

To determine Potentiometrically the concentration of Iodide solution by potentiometric titration against 0.1 N KMnO_4 .

Requirements :

1. 0.1 N KMnO_4
2. x N KI
3. Saturated KCl
4. 2.0 N H_2SO_4

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -13

Ex. No :- 2

Marks - 50

Potentiometry-2

Aim :

To determine Potentiometrically the concentration of ferrous ammonium sulphate solution and hence determine the redox potential of the given $\text{Fe}^{+2}/\text{Fe}^{+3}$ system.

Requirements :

1. 0.1 N $\text{K}_2\text{Cr}_2\text{O}_7$
2. x N $\text{FeSO}_4(\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -14

Ex. No :- 3

Marks - 50

Colorimetry-1

Aim :

To determine the concentration of the nitrate in the given solution by Colorimetric estimation method.

Requirements :

- | | |
|-------------------------------------|--|
| 1. 0.01 M NaNO_2 | 4. CH_3COONa solution. |
| 2. H_2SO_4 solution | 5. Colorimeter |
| 3. α -nephthylamine solution | 6. Green filter |

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -15

Ex. No :- 4

Marks - 50

Colorimetry-2

Aim :

To determine the concentration of unknown solution from given $K_2Cr_2O_7$ solution by Colorimetric.

Requirements :

1. 0.01 M $K_2Cr_2O_7$
2. Colorimeter
3. Blue filter

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -16

Ex. No :- 5

Marks - 50

Conductometry

Aim :

To determine the solubility product and solubility of sparingly soluble salt of $BaSO_4$ by Conductometry.

Requirements :

1. 10 % K_2SO_4
2. 10 % $Ba(NO_3)_2$
3. 0.1 N KCl solution.

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -17

Ex. No :- 6

Marks - 50

pH metry.

Aim :

To determine the strength of strong and weak base in a given mixture using a pH meter.

Requirements :

1. 0.1 N HCl
2. x N NaOH + x N NH₄OH
3. Buffer solution

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -18

Ex. No :- 7

Marks - 50

Kinetics

Aim :

To study the reaction between KBrO₃ and KI at two different temperature and calculate the temperature coefficient and the energy of activation.

Requirements :

- | | |
|----------------------------|---|
| 1. 0.1 N KBrO ₃ | 4. 0.01 N Na ₂ S ₂ O ₃ 5H ₂ O |
| 2. 0.1 N KI | 5. Starch solution(Indicator) |
| 3. 0.1 N HCl | 6. Ice |

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -19

Ex. No :- 8

Marks - 50

Adsorption

Aim :

To study the adsorption of Acetic acid on charcoal and prove the validity of freundlich equation.

Requirements :

1. Animal charcoal
2. 0.5 N CH₃COOH
3. 0.1 N NaOH
4. Phenolphthalein

Hem.N.G.U. B.Sc. Sem-VI

Phy-CH -20

Ex. No :- 9

Marks - 50

Viscosity

Aim :

To determination of molecular weight of high polymer (i.e. polystyrene) by viscosity measurement.

Requirements :

1. Toluene.
2. 0.1 %, 0.2 %, 0.3 %, 0.4 %, 0.5 % solution of polymer.

