

Scheme of Practical Examination and Valuation Procedure for B.Sc. Chemistry Practicals

BSc – I Semester Chemistry Practical – I

Duration: 4Hrs

Max. Marks: 40 (Practical-30; Class record- 10)

The practical examination shall consist of the following:

Q.1. Exercise set for procedure writing

10marks

Outline of the procedure including calculations to be written within the first 15 minutes.

Any one of the exercises may be given for this purpose, irrespective of whether the candidate has carried out experiment or not.

1. Estimation of manganese in pyrolusite by volumetric method.
2. Estimation of glucose using iodine and sodium thiosulphate.
3. Estimation of vitamin-C.
4. Determination of acetic acid in Vinegar using NaOH.
5. Determination of alkali content in antacid tablet using HCl

Q.2. Exercise to be set for actual estimation.

20 marks:

Any one of the following exercises is to be set for actual estimation. Examiners shall provide the candidates a detailed procedure for the exercise set:

1. Preparation of standard decinormal solution of sodium carbonate and standardization of hydrochloric acid and estimation of sodium hydroxide in solution.
2. Preparation of standard decinormal solution of potassium biphthalate and standardization of sodium hydroxide solution and estimation of hydrochloric acid in solution.
3. Preparation of standard decinormal solution oxalic acid and standardization of potassium permanganate solution and estimation of Mohr's salt in solution.
4. Preparation of standard decinormal solution of ferrous ammonium sulphate (Mohr's salt) and standardization of potassium dichromate solution and estimation of ferric chloride in solution.
5. Preparation of standard decinormal solution of potassium dichromate and Standardisation of sodium thiosulphate solution and estimation of copper sulphate in solution.
6. Estimation of a mixture of oxalic acid and sulphuric acid in a solution using potassium permanganate solution and standard sodium hydroxide solution.

Note:a) AR/GR chemicals should be used for preparing the stock solutions and reagents.

b) At least grade B pipette should be used.

c) The candidates must be provided with 250cm³ volumetric flask and 25 cm³ pipettes.

d)The different volumes(in the range 20-30 cm³) of 1N solutions meant for estimation should be pipetted out by the examiners in 250 cm³ volumetric flasks so that not more than 3 candidates in a batch get the same value of 1N solutions distributed.

Valuation Scheme:

1. Class records:

10 Marks

The records certified by the teacher in charge and head of the Chemistry Department should be valued by the examiners.

i) Marks for experiments recorded : 7 marks

ii) Marks for neatness : 3 marks

2. Procedure writing

10 Marks

Essential details of procedure=6 marks

Tabulation and calculation =4marks.

3. Actual estimation:**20 Marks**

i) Titre values 16 marks:

Errors	Standardization (Marks)	Estimation (Marks)
$\pm 0.2 \text{ cm}^3$	8	8
$\pm 0.3 \text{ cm}^3$	7	7
$\pm 0.4 \text{ cm}^3$	5	5
$\pm 0.5 \text{ cm}^3$	4	4
$\pm 0.6 \text{ cm}^3$	3	3
Any other value	2	2

NOTE: Candidates should retain only three titre values on each set of titrations out of which two concordant values are to be considered. All other values must be struck off by the candidates. If a candidate records more than three titre values, first three values are to be considered and extra titre values are to be ignored. In case the candidate records only one titre value, only 50% of the marks are to be awarded in each case. Examiners are requested to bring this to the notice of the candidates. Every burette reading shall be attested by one of the examiners.

ii) Calculations (4 marks)

Normality of prepared solution	= 1 mark
Normality of link solution	= 1 mark
Final step	= 2 marks

Scheme of Practical Examination and Valuation Procedure for B.Sc. Chemistry Practicals

BSc –II Semester Chemistry Practical – II

Duration: 4Hrs

Max. Marks: 40 (Practical-30; Class Record- 10)

The practical examination shall consist of the following:

Q.1. Exercise set for procedure writing

10 Marks

Outline of the procedure to be written within first 15 minutes. Any of the exercise in the syllabus under chromatography may be given for this purpose, irrespective of whether the candidate has carried out the experiment or not.

A. Thin Layer Chromatography

1. Separation of green leaf pigments.
2. Separation of mixture of dyes using cyclohexane and ethyl acetate (8.5:1.5).

B. Paper Chromatography: Ascending and Circular

1. Separation of mixture of phenylalanine and glycine, alanine and aspartic acid, Leucine and glutamic acid; Spray reagent – ninhydrin.
2. Separation of mixture of D,L-alanine, glycine, L- Leucine using n-butanol-acetic acid-water (4:1:5); Spray reagent – ninhydrin.

C. Column Chromatography:

1. Separation of Fluorescein and methylene blue.
2. Separation of leaf pigments from spinach leaves.

Q.2. Exercise set for organic analysis.

20 Marks

Any one of the following compounds may be given for analysis:

Resorcinol, oxalic acid, Urea, thiourea, Benzoic acid, p-Cresol, p- toluidine, Chlorobenzene, Bromobenzene, Nitrobenzene, Benzaldehyde, Acetophenone, Benzamide, Aniline.

VALUATION SCHEME:

1. Class records:

10 marks

The records certified by the teacher in charge and head of the chemistry Department should be valued by the examiners.

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|-----------------------------------|-----------|
| i) Marks for experiments recorded | : 7 marks |
| ii) Marks for neatness | : 3 marks |

2. Procedure writing

10 Marks

- | | |
|--------------------------------|--------|
| Essential details of procedure | 8 mark |
| Calculations | 2marks |

3. Organic analysis

20 Marks

Preliminary tests

1 mark

Physical constant

3 marks (<2% error)

Detection of elements

4 marks (Tests for nitrogen, halogen and sulphur)

Solubility 4 marks

Reactions of functional group

6 marks (Any two)

Name and structure

2 marks

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