

Guidelines for Higher Secondary Practical Evaluation

2016-17

Class XII

Subject: Chemistry

Laboratory work plays a crucial role in the proper assimilation of concepts in science. As we follow outcome focussed assessment approach in the evaluation process in the Kerala School Curriculum 2013, term end evaluation becomes an important aspect of assessment. Along with term end evaluation at the end of the academic year, practical evaluation (PE) is also to be conducted. The skill in performing qualitative and quantitative analysis is to be assessed through PE. The following are the guidelines to be followed while conducting PE:

- Sufficient number of apparatus is to be provided to the students.
- The apparatus should of good quality brands.
- Sufficient number (at least 30) of standardised and calibrated apparatus should be kept aside for conducting PE.
- A minimum of 8 salts (those soluble in water) for systematic analysis of anion & cation should be given to the students.
- A minimum of 6 single titrations (Acidimetry -2, Alkalimetry – 2, Permanganometry - 2) should be given for volumetric analysis.
- The Practical Record should contain all the necessary recording related to the first year and second year practical syllabi collectively.

[Minimum requirements in the Practical Record: Basic laboratory techniques, reactions of anions and cations, salt analysis of 8 salts (anion & cation), 6 single titrations, physical chemistry experiments (minimum 2), reactions of organic compounds (Aldehydes, Ketones, Phenol, Aniline, Carboxylic Acids), identification of functional groups (minimum 5)].

- Required facilities should be arranged in the laboratory for students demanding special attention because of deformities.
- The score distribution (detailed split up appended) should be as follows:

- | | | |
|--|-------------|-------------|
| ○ Qualitative Analysis (Anion & Cation Analysis) | – 13 scores | } 40 scores |
| ○ Organic Analysis (Detection of functional group) | – 6 scores | |
| ○ Quantitative Analysis (Single Titration Only) | – 12 scores | |
| ○ For writing principle & procedure
for Quantitative Analysis | – 3 scores | |
| ○ Practical Record | – 4 scores | |
| ○ Viva voce | – 2 scores | |
- The viva voce should be done for ascertaining the awareness of concepts related to the practical. It should not create tension to the students. It should be a casual interaction with the students through simple questions related to practicals only to check whether he/she has conceptual clarity in the given work.

Scheme of Work for Practical Evaluation

Class – XII

CHEMISTRY

Detailed Split up of Scores:

1. Practical Record

Scores

a. Basic laboratory techniques	-	½
b. Physical Chemistry Experiments (two)	-	½
c. Reactions of anions and cations	-	½
d. Salt analysis (8 salts)	-	½
e. Reactions of Organic compounds	-	½
f. Identification of Functional group of organic compounds (5 functional groups – Carboxylic acid, Phenol, Aniline, Aldehyde and Ketone)	-	½
g. Volumetric Analysis (Acidimetry -2, Alkalimetry – 2, Permanganometry - 2)	-	1
2. Viva Voce (Ascertaining the awareness of concepts related to the practical through simple questions informally)	-	2
3. Qualitative Analysis		
a. Anion		
i. Identification test (One test)	-	3
ii. Confirmatory test (One test)	-	3
b. Cation		
i. Identification of group (One test)	-	2
ii. Identification of cation (One test)	-	2
iii. Confirmatory test (One test)	-	3
4. Functional group analysis of organic compound		
a. Identification of functional group (One test)	-	3
b. Confirmation of functional group (One test)	-	3
5. Quantitative Analysis (Single Titration)		
a. Tabulation and recording	-	2

b. Calculation

- | | | |
|---|---|---|
| i. Normality of standard solution | - | 1 |
| ii. Normality of solution to be estimated | - | 1 |
| iii. Correct equivalent masses | - | 1 |
| iv. Correct calculation of the result with unit | - | 2 |

c. Correct reading of result

- | | | |
|---------------------------------|---|---|
| i. Error within 1% (Full score) | - | 5 |
| ii. Error up to 1% | - | 4 |
| iii. Error up to 2% | - | 3 |
| iv. Error above 2% | - | 2 |

6. For writing the principle and procedure for quantitative analysis

- | | | |
|---|---|---|
| a. For writing the balanced chemical equation | - | 1 |
| b. Procedure | | |

Solution in pipette	½
Solution in burette	½
Indicator used	½
Colour change	½

Note:

- i. *The procedure for qualitative analysis should be obtained in detail.*
- ii. *The student need not weigh the substance. The standard solution for estimation should be provided by the examiner.*
- iii. *The student has to make up the solution for estimation.*
- iv. *Systematic analysis should be followed in inorganic and organic analysis.*
- v. *Normality may be used as the concentration for volumetric analysis.*

Sample Question Paper for Practical Evaluation

HIGHER SECONDARY PRACTICAL EXAMINATION (2016 – 17 ONWARDS)

Subject: **CHEMISTRY**

Maximum Score: 40 Time: 3 Hours

1. Estimate the mass of KMnO_4 in the whole of the given solution. You are provided with a standard solution of Oxalic acid containing 6.3g/L. **(Score: 12)**
 2. Briefly write the principle and procedure for the above estimation within first 5 minutes. **(Score: 3)**
 3. Analyse the given salt and identify and confirm systematically the anion and cation present in it. **(Score: 13)**
 4. Analyse the given organic compound and identify and confirm the functional group present in it. **(Score: 6)**
 5. Viva voce (Informal simple Questions to know awareness on practical). **(Score: 2)**
 6. Practical Record **(Score: 4)**
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