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CODE : 35T CHEM (Pr / I)
(EN)

2026

Suggestive Guidelines for

CHEMISTRY
(Practical)

Full Marks : 30

Pass Marks : 12

Time : 3 hours

The figures in the margin indicate full marks for the questions.

Note : The guidelines for 2026 has to be prepared on this basis without repeating from the suggestive guidelines as far as practicable.

INSTRUCTIONS TO EXAMINERS

1. Prepare $KMnO_4$ solutions of molarities approximately $M/50$, $M/55$, $M/60$ and $M/65$. Supply about 100 mL of the $KMnO_4$ solution to an examinee by draw of lots.

   Also supply about 100 mL of $M/10$ ferrous ammonium sulphate solution/ $M/20$ oxalic acid solution to each of the examinee.

   Distribution of Marks :

   (a) Completion of the experiment 2

   (b) Result —

   – Up to 1% error in volume of titrant 3

   – Above 1% to 2% error in volume of titrant 2

   – Above 2% to 3% error in volume of titrant 1

   – Above 3% error in volume of titrant 0

   (c) Calculations —

   – Molarity ½

   – g/L ½

2. Sample of salt from the following may be selected to supply to the examinees. Duplication should be avoided as far as possible in a batch. The salt should be soluble in water or *dil*. *HCl*.

   (a) Aluminium – chloride, sulphate

   (b) Ammonium – chloride, sulphate

   (c) Barium – carbonate, chloride, nitrate

   (d) Calcium – carbonate, chloride

   (e) Cobalt – sulphate, nitrate

   (f) Copper – carbonate, sulphate

(g) Ferrous – sulphate

(h) Lead – nitrate

(i) Magnesium – carbonate, sulphate

(j) Manganous – sulphate

(k) Nickel – carbonate, sulphate

(l) Strontium – carbonate, nitrate

(m) Zinc – sulphate

Distribution of Marks :

For anion **(acid radical)**

(a)	Dry tests	1
(b)	Wet tests	1
(c)	Confirmatory tests	1
(d)	Identification and reporting	1

For cation **(basic radical)**

(a)	Dry tests	2
(b)	Group analysis	2
(c)	Analysis of group precipitate	1
(d)	Identification and reporting	1

3. For preparation of ferrous ammonium sulphate, supply 2·0 *g* $FeSO_4.7H_2O$ salt and 1·0 *g* $(NH_4)_2SO_4$ salt to each of the examinee.

Give the standard method of preparation of ferrous ammonium sulphate.
Yield = ~ 2·1 *g*

Distribution of Marks :

(a)	Completion	1
(b)	Quality of crystals	1
(c)	Yield	2

Or

Supply one solid organic compound containing one functional group each to the examinees. The compounds should contain the following functional groups —

(i) — $COOH$ (carboxylic)

(ii) — OH (phenolic)

(iii) $C=O$ (aldehyde/ketone)

Distribution of Marks :

(a)	Functional group tests	2
(b)	Identification	1
(c)	Reporting	1

4. **Investigatory Project :**

(a)	Completion of the Project work	2
(b)	Reporting	2
(c)	Viva voce (on project work)	1

Or

Any three experiments from the following topics in lieu of investigatory project —

(a) Surface chemistry

(b) Chemical kinetics

(c) Thermochemistry

(d) Electrochemistry

(e) Chromatography

Distribution of Marks :

(i)	Completion of experiments	3 (1 each)
(ii)	Reporting	1
(iii)	Viva on the experiments	1

5. Laboratory notebook. 3

Number of experiments done and regularity must be considered on awarding marks.

6. Viva voce. 2

Questions should be asked from the experiments performed by the candidate in the examination.

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Questions

1. *(a)* Determine the strength of given potassium permanganate $(KMnO_4)$ solution in terms of *(i)* molarity and *(ii)* grams per litre by titrating it against supplied oxalic acid solution of concentration $M/20$. 6

Or

(b) Determine strength of the given potassium permanganate $(KMnO_4)$ solution in terms of *(i)* grams per litre by titrating it against supplied ferrous ammonium sulphate (Mohr's salt) solution of concentration $M/20$.

2. Make a complete systematic qualitative analysis of the inorganic salt sample supplied to you and report the analysis along with the two radicals present in it. 10

3. *a)* Do chemical test to detect the functional group present in the organic sample supplied to you and report the result systematically. Also test and report saturated/unsaturated nature of the compound. 4

Or

Prepare hydrated crystals from the ferrous sulphate and ammonium sulphate from the ferrous sulphate and ammonium sulphate salts supplied to you. Dry the crystals, weigh it and submit.

4. *(a) Investigatory project work :*

Submit the project report along with the laboratory notebook at the beginning of the practical examination. 5

Or

(b) Any three of the assigned experiments done in lieu of the investigatory project. Submit the reports of the three experiments along with the notebook at the beginning of the practical examination.

5. Laboratory notebook. 3

6. Viva voce. 2

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