Name of the Student:_____
Max. Marks : 11 Marks **Time : 11 Minutes**

Mark Schemes

Q1.

(a) Multidentate − EDTA can form many / six dative bonds with central cation. **1**

Ligand − lone pair (on N or O of EDTA) can form dative bond with copper(II) ions. **1**

6 circles drawn on $EDTA^{4-}$ structure − 2 × N and 4 × −O **1**

(b) Calibrate a colorimeter / produce a calibration curve. **1**

By testing the colorimeter with solutions of copper-EDTA complex of known concentration. **1**

Add excess EDTA salt to the sample. **1**

(c) $[Cu(H_2O)_6]^{2+} + EDTA^{4-} \longrightarrow [Cu(EDTA)]^{2-} + 6H_2O$ **1**

Amount of copper(II) = $(25.0 \times 7.56 \times 10^{-5}) /1000 = 1.89 \times 10^{-6}$ mol **1**

Volume of $EDTA^{4-} = (1.89 \times 10^{-6} / 0.001) \times 1000 = 1.89\ cm^3$ **1**

This is too small to be accurate. **1**

Dilute the $EDTA^{4-}$ solution / use larger volume of river water. **1**

[11]

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