

A Level Chemistry B (Salters)
H433/01 Fundamentals of chemistry

Developing Metals

Question Set 9

Multiple Choice Questions

1 A student is given the electrode potentials below.



The student sets up a cell from the two half cells. Which statement is correct?

- A The cell voltage is -1.14 V
- B Cu^{2+} is reduced by Ag.
- C Cu is oxidised by Ag^{+} .
- D Cu^{2+} is oxidised by Ag.

Your answer

[1]

2 Which ion is coloured?

- A Zn^{2+}
- B Sc^{3+}
- C Tl^{3+}
- D Tl^{4+}

Your answer

[1]

3 Which statement(s) about rusting is/are correct?

- 1 Rust contains Fe^{3+} ions.
 - 2 Oxygen molecules are reduced during rusting.
 - 3 The first step in rusting is $\text{Fe} \rightarrow \text{Fe}^{3+} + 3\text{e}^{-}$
- A 1, 2 and 3
 - B Only 1 and 2
 - C Only 2 and 3
 - D Only 1

Your answer

[1]

4 Which statement(s) about the $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$ ion is/are correct?

- 1 The bond angles around the metal are 90° .
- 2 The shape is octahedral.
- 3 The co-ordination number is 6.

- A** 1, 2 and 3
B Only 1 and 2
C Only 2 and 3
D Only 1

Your answer

[1]

5 Colorimetry is used to find the concentration of an orange solution of iodine. Which statement is correct?

- A** The more concentrated the solution the more light is transmitted.
B A yellow-coloured filter should be used.
C The absorbance of solutions of known concentration should be measured to get a calibration curve.
D Orange light is absorbed.

Your answer

[1]

6 What is correct for the complex $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$?

- A** The charge on each ligand is $2-$.
B The co-ordination number of the metal ion is 3.
C The oxidation state of the iron is $+2$.
D The ligand is monodentate.

Your answer

[1]

7 Which row gives the correct appearances of the products of the reactions?

	$[\text{Fe}(\text{H}_2\text{O})_6]^{3+}(\text{aq})$ and sodium hydroxide solution	$[\text{Cu}(\text{H}_2\text{O})_6]^{2+}(\text{aq})$ and excess conc. ammonia solution
A	Green precipitate	Green solution
B	Orange precipitate	Blue/violet solution
C	Orange precipitate	Green precipitate
D	Orange solution	Yellow solution

Your answer

[1]

8 The steps involved in measuring the concentration of a coloured solution with a colorimeter are given below in a random order.

1. Measure the absorbance of several known concentrations of the solution.
2. Measure the absorbance of the sample of unknown concentration.
3. Plot a calibration curve.
4. Select a suitable coloured filter.

What is the correct order for these steps?

- A** 1, 2, 3, 4
B 4, 3, 2, 1
C 4, 1, 3, 2
D 3, 1, 4, 2

Your answer

[1]

9 Excess ammonia solution is added separately to $\text{Cu}^{2+}(\text{aq})$ and $\text{Fe}^{2+}(\text{aq})$. The solutions are left in the air.

Which row of the table represents the colour changes seen?

	$\text{Cu}^{2+}(\text{aq})$	$\text{Fe}^{2+}(\text{aq})$
A	Pale blue precipitate → dark blue solution	Dark green precipitate → orange precipitate
B	Green/blue solution → dark blue solution	Green precipitate remaining green
C	Pale blue precipitate → green/blue solution	Orange precipitate → dark green precipitate
D	Pale blue precipitate → dark blue solution	Orange precipitate → dark green precipitate

Your answer

[1]

Total Marks for Question Set 9: 9

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