



# **Final Exam Revision** **Sheet** **Term-2** **2018-2019**

**Name:** \_\_\_\_\_

**Subject:**

**Chemistry**

**Grade:**

**12 A, B, C**



**Required Materials:**

**Chapter: 19 Section: 1, 3**  
**(Textbook pg. 595-609)**

**Chapter: 20 Section: 1, 2, 3**  
**(Textbook pg. 617-631)**



Student's name: \_\_\_\_\_ "I can do it" Class/Section: 12 / \_\_\_\_

Subject: Chemistry Date: \_\_\_\_\_ NGSS: HS-PS1.B, HS-PS3.D

**Individual Work Objective:**

1. to describe the Redox reactions
2. to explain the types of electrochemical cells

**Chemistry Revision Sheet**

**SHORT ANSWER**

**Q. Answer the following questions in the space provided.**

1. \_\_\_\_\_ In a voltaic cell, transfer of charge through the external wires occurs by means of
  - (a) ionization.
  - (b) ion movement.
  - (c) electron movement.
  - (d) proton movement.
2. \_\_\_\_\_ All the following claims about voltaic cells are true *except*
  - (a)  $E^0_{cell}$  is positive.
  - (b) The redox reaction in the cell occurs without the addition of electric energy.
  - (c) Electrical energy is converted to chemical energy.
  - (d) Chemical energy is converted to electrical energy.
3. \_\_\_\_\_ An electrochemical cell consists of two electrodes separated by a(n)
  - (a) anode.
  - (b) cathode.
  - (c) voltage.
  - (d) electrolyte.
4. \_\_\_\_\_ When a car battery is charging,
  - (a) electrical energy is converted into energy of motion.
  - (b) energy of motion is converted into electrical energy.
  - (c) chemical energy is converted into electrical energy.
  - (d) electrical energy is converted into chemical energy.
5. \_\_\_\_\_ Electroplating is an application of
  - (a) electrolytic cell reactions.
  - (b) fuel cell reactions.
  - (c) auto-oxidation reactions.
  - (d) galvanic reactions.

6. \_\_\_\_\_ A major benefit of electroplating is that it  
(a) increases concentrations of toxic wastes.  
(b) protects metals from corrosion.  
(c) saves time.  
(d) leads to a buildup of impurities.
7. \_\_\_\_\_ The transfer of charge through the electrolyte solution occurs by means of  
(a) ionization.  
(b) ion movement.  
(c) electron movement.  
(d) proton movement.

8. Use Table 2.10 on page 626 of the text to find  $E^0$  for the following:

\_\_\_\_\_ a. the reduction of  $\text{MnO}_4^{1-}$  to  $\text{MnO}_4^{2-}$

\_\_\_\_\_ b. the oxidation of Cr to  $\text{Cr}^{3+}$

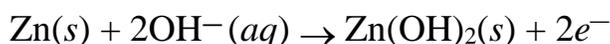
\_\_\_\_\_ c. the reaction within the SHE

\_\_\_\_\_ d.  $\text{Cl}_2 + 2\text{Br}^- \rightarrow 2\text{Cl}^- + \text{Br}_2$

9. Why does a zinc coating protect steel from corrosion?

\_\_\_\_\_  
\_\_\_\_\_

10. Which two types of batteries share the following anode half-reaction?



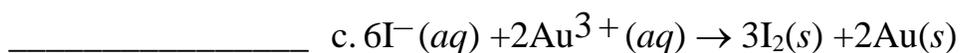
\_\_\_\_\_  
\_\_\_\_\_

11. Complete the following sentences:

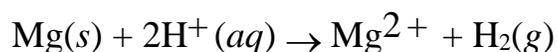
Corrosion acts as a voltaic cell because oxidation and reduction reactions occur \_\_\_\_\_ at different sites. The two half-cells are connected by a \_\_\_\_\_, which allows electrons to flow.

**PROBLEM** Write the answer on the line to the left. Show all your work in the space provided.

12. Use **Figure 2.10** of the text pg. 626 to find  $E^0$  for the following voltaic cells:



13. A voltaic cell is constructed that reacts according to the following equation:



a. Write equations for the half-reactions that occur in this cell.

\_\_\_\_\_  
\_\_\_\_\_

b. Which half-reaction occurs in the anode half-cell?

\_\_\_\_\_  
\_\_\_\_\_

c. Write the cell notation for this cell.

\_\_\_\_\_  
\_\_\_\_\_

d. Electrons flow through the wire from the \_\_\_\_\_ electrode to the \_\_\_\_\_ electrode. Positive ions move from the \_\_\_\_\_ half-cell to the \_\_\_\_\_ half-cell.

14. Label each of the following statements as applying to a *voltaic cell*, an *electrolytic cell*, or *both*:

- \_\_\_\_\_ a. The cell reaction involves oxidation and reduction.
- \_\_\_\_\_ b. The cell reaction proceeds spontaneously.
- \_\_\_\_\_ c. The cell reaction is endothermic.
- \_\_\_\_\_ d. The cell reaction converts chemical energy into electrical energy.
- \_\_\_\_\_ e. The cell reaction converts electrical energy into chemical energy.
- \_\_\_\_\_ f. The cell contains both a cathode and an anode.

15. \_\_\_\_\_ In an electrolytic cell, oxidation takes place

- (a) at the anode.
- (b) at the cathode.
- (c) via the salt bridge.
- (d) at the positive electrode.

16. An electrolytic process in which solid metal is deposited on a surface is called \_\_\_\_\_.

17. When a rechargeable camera battery is being recharged, the cell acts as a(n) \_\_\_\_\_ cell and converts \_\_\_\_\_ energy into \_\_\_\_\_ energy. When the battery is being used to power the camera, it acts as a(n) \_\_\_\_\_ cell and converts \_\_\_\_\_ energy into \_\_\_\_\_ energy.

18. a. What is electroplating?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

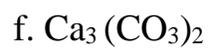
b. Identify the anode & cathode & redox reactions in such a process.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

19. Determine the **oxidation number** of each atom indicated in the following:



i.  $B_2S_3$

j.  $P_4$

20. Define the following terms:

a. Reducing Agent

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b. Oxidising Agent

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c. Disproportionation

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21. a. Identify the most active reducing agent among all common elements.

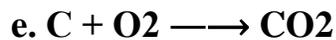
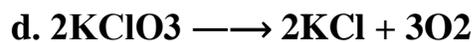
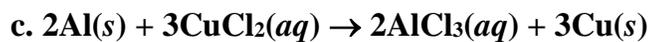
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c. Identify the most active oxidizing agent among the common elements.

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22. Which of the following are redox reactions or non-redox reactions?

Identify what is oxidized(oxidation) and what is reduced (reduction).



Degree	Enhance &Comments	Target	Value
			<u>Tolerance</u>

Keep your school clean!

Done By: Mrs. Madeeha Abdul Latif

