

**WORKSHEET**  
**CHEMISTRY FOR ENGINEERING STUDENTS, LECTURE 1**  
 CHEMISTRY OF METALS AND ALLOYS

**ANSWERS KEY**

**QUESTION 1. CLASSIFY THE ELEMENTS OF PERIODIC TABLE INTO METALS AND NON-METALS.**

1. Distinguish between metals and non-metals based on properties such as electrical and thermal conductivity, ductility, malleability, etc.
  - (a) Write the balanced chemical equation for the reaction of  $\text{Cu}$  with  $\text{H}_2\text{SO}_4$  and  $\text{HNO}_3$ .
    - (i)  $\text{Cu} + \text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{H}_2$
    - (ii)  $3\text{Cu} + 8\text{HNO}_3 \rightarrow 3\text{Cu(NO}_3)_2 + 2\text{N}_2\text{O} + 4\text{H}_2\text{O}$
  - (b) Write the balanced chemical equation for the reaction of  $\text{Fe}$  with  $\text{H}_2\text{SO}_4$  and  $\text{HNO}_3$ .
    - (i)  $\text{Fe} + \text{H}_2\text{SO}_4 \rightarrow \text{FeSO}_4 + \text{H}_2$
    - (ii)  $\text{Fe} + 4\text{HNO}_3 \rightarrow \text{Fe(NO}_3)_3 + \text{NO} + 2\text{H}_2\text{O}$
2. State the main differences between ionic and covalent compounds.
  - (a) Write the balanced chemical equation for the reaction of  $\text{NaCl}$  with  $\text{H}_2\text{O}$ .
    - (i)  $\text{NaCl} + \text{H}_2\text{O} \rightarrow \text{Na}^+ + \text{Cl}^-$
  - (b) Write the balanced chemical equation for the reaction of  $\text{H}_2\text{O}$  with  $\text{CO}_2$ .
    - (i)  $\text{H}_2\text{O} + \text{CO}_2 \rightarrow \text{H}_2\text{CO}_3$
3. Distinguish between metals and non-metals based on properties such as electrical and thermal conductivity, ductility, malleability, etc.
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# Chem 21 Lab Answers

**Wenbin Ji**



**Chem 21 Lab Answers:**

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Answer the following questions. a). What voiced consonant has the same place of articulation as [t] and the same manner of articulation as [f]? ... Primer of EEG: With A Mini-Atlas by Rowan MD, A. James This practical handbook covers all the key aspects of EEG interpretation. Arranged in an easy-to-use format, the text covers the value of EEG, practical tips on ... Primer of EEG With a Mini-Atlas - Neurology® Journals by AR King · 2004 — This is a primer of EEG with a mini atlas: a book designed to be a quick and user-friendly reference. Primer of EEG With a Mini-Atlas Primer of EEG With a Mini-Atlas. Allison R. King, MD Authors Info & Affiliations. May 11, 2004 issue. 62 (9) 1657. <https://doi.org/10.1212/WNL.62.9.1657>. Letters ...

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