

## Quiz 14.4 – Lewis Acids and Bases

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

**Question 1**

$\text{SCN}^-$  ions can accept a hydrogen and act as a Brønsted-Lowry base, but it can also act as a Lewis base. Draw a Lewis structure for  $\text{SCN}^-$  and indicate where the ion might make a new coordinate bond to form a Lewis adduct

**Question 2**

Iron(III) ion will form a Lewis adduct with a single  $\text{SCN}^-$  ion. Identify which reaction partner is the Lewis acid, and which is the Lewis base

**Question 3**

Give the molecular formula for the Lewis adduct described in Question 2 above

**Question 4**

Draw a Lewis structure for the Lewis adduct described in Questions 2 and 3 above. Indicate the coordinate covalent bond which forms the adduct

**Question 5**

Which of the following is *incapable* of acting as a Lewis base:

**Question 6**

In the reaction  $\text{CO}_2(\text{aq}) + \text{H}_2\text{O(l)} \rightleftharpoons \text{H}_2\text{CO}_3(\text{aq})$ , identify which reactant is the Lewis acid, and which is the Lewis base

*O Captain! My Captain!*

By Walt Whitman

O Captain! my Captain! our fearful trip is done,  
The ship has weather'd every rack, the prize we sought is won,  
The port is near, the bells I hear, the people all exulting,  
While follow eyes the steady keel, the vessel grim and daring;

But O heart! heart! heart!

O the bleeding drops of red,  
Where on the deck my Captain lies,  
Fallen cold and dead.

O Captain! my Captain! rise up and hear the bells;  
Rise up—for you the flag is flung—for you the bugle trills,  
For you bouquets and ribbon'd wreaths—for you the shores a-crowding,  
For you they call, the swaying mass, their eager faces turning;

Here Captain! dear father!

This arm beneath your head!

It is some dream that on the deck,  
You've fallen cold and dead.

My Captain does not answer, his lips are pale and still,  
My father does not feel my arm, he has no pulse nor will,  
The ship is anchor'd safe and sound, its voyage closed and done,  
From fearful trip the victor ship comes in with object won;

Exult O shores, and ring O bells!

But I with mournful tread,

Walk the deck my Captain lies,  
Fallen cold and dead.