Select the best answers.

Which of these statements accurately describe the valence electrons in a block of pure metal?

ATTEMPT 1

- [x] The electrons are free to move among all the atoms in the block. ✓
- [ ] The electrons form anions in the metal.

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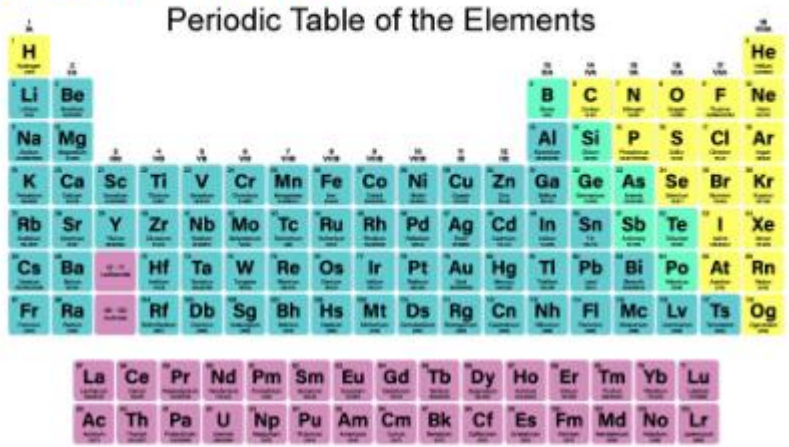
- [x] The electrons are not held by any particular metal nucleus. ✓
- [ ] All the electrons are valence electrons.
- [ ] The electrons form ionic bonds.
- [ ] The electrons are cations.

Select the best terms from the drop-down menus to complete the sentence.

Based on the position of pure iron (Fe) in the periodic table, its valence electrons would most likely be

1. delocalized ✓ and can

2. easily move throughout the solid ✓ .



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1. delocalized ✓

2. easily move throughout the solid ✓

Select the best answers.

Which of these statements about the electrons in a metal solid are true?

ATTEMPT 1

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- [x] The valence electrons surround the metal cations in the lattice structure. ✓
- [ ] All electrons in the metal have similar energy levels.
- [ ] None of the electrons in the metal can be ionized.
- [x] Electrons forming the metallic bonds are valence electrons. ✓
- [ ] All electrons in the metal are valence electrons.
- [ ] Electrons forming the metallic bonds cannot be ionized.

Select the best answer.

Which of the following statements about the valence electrons in a material with metallic bonds is true?

- ◉ The valence electrons are delocalized. ✓
- ○ The valence electrons are not attracted to their nuclei.
- ○ The valence electrons are organized in a lattice structure.
- ○ The valence electrons are immobile.

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Drag and drop the best terms to complete the sentences.

A delocalized electron is a 1. valence electron ✓ that is free to move between 2. metal atoms ✓. A delocalized electron 3. not held ✓ by a particular atom.

transferred | inner shell electron | anions | metal anions | held

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1. valence electron ✓

2. metal atoms ✓

3. not held ✓

Select the best answer.

In which of the following substances would you find a "sea" of electrons?

- an ionic compound in the solid state
- a covalent compound in the gaseous state
- a pure metal in the solid state ✓
- an ionic compound in the gaseous state

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