Chemistry: 2019-2020

Question 1

Multiple choice (one answer)

How many valence electrons can be found in arsenic (group 5A)?

- ○ 3
- ○ 5
- ○ 8
- ○ 6

Question 2

Multiple choice (one answer)

An element has 7 valence electrons. Which group on the periodic table would this element belong to?

- ○ Group 1A
- ○ Group 17
- ○ Group 18
- ○ Group 7B

Question 3

Multiple choice (one answer)

How many valence electrons does carbon have?

- ○ 3
- ○ 1
- ○ 2
- ○ 4

Question 4

Multiple choice (one answer)

A _____ is a positive ion.

- ○ cation
- ○ anion

Question 5

Multiple choice (one answer)

When an ionic compound is struck, a slight shift of the lattice causes the charges to align and repel. This results in an ionic compound

- ○ none of these.
- ○ having a high melting temperature
- ○ being brittle.
- ○ conducting an electrical current when melted.

Question 6

Multiple choice (one answer)

An ionic compound shatters because

- ○ it is malleable and ductile
- ○ when struck, the ionic lattice shifts causing like charges to align and repel away from each other
- ○ the ions are charged particles and will interact with polar water molecules
- ○ the melting temperature is very high

Question 7

Multiple choice (one answer)

Ionic compounds have very high melting temperatures. This is because forces between ions are _____.

- ○ weak
- ○ very strong

Question 8

Multiple choice (one answer)

Extremely strong electrostatic forces between ions in an ionic compounds results in the melting temperature being

- ○ very low
- ○ very high

Question 9

Multiple choice (one answer)

An ionic compound will conduct electricity if an electrical current is applied when melted because

- ○ electrons can move freely between metal atoms bonded together in a lattice
- ○ ions are not charged particles, and therefore will conduct an electrical current when melted
- ○ charged ions are bonded together strongly in a solid ionic lattice
- ○ the ions, which are charged particles, are able to move freely in the liquid state

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Question 10

Multiple choice (one answer)

Ions are able to move freely when an ionic compound is melted. This results in

- ○ the ionic compound being quenched when poured into water
- ○ the melted liquid being able to conduct electricity
- ○ the liquid being brittle

Question 11

Multiple choice (one answer)

Solid ionic compounds

- ○ will conduct electricity even though the charged ions are held firmly in place with electrostatic bonds
- ○ will not conduct electricity because the charged ions cannot move
- ○ are malleable and ductile
- ○ will have very low melting temperatures

Question 12

Multiple choice (one answer)

An ionic compound dissolved in water will conduct electricity because

- ○ charged ions remain firmly held in place in the solid form
- ○ it is brittle
- ○ it has a low melting temperature
- ○ charged ions are no longer held in the solid structure and can move freely in the water

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Question 13

Multiple choice (one answer)

Many ionic compounds dissolve in water because

- ○ ionic compounds are brittle
- ○ the slightly charged ends of polar water molecules are attracted to charged ions and are able to pull them away from the ionic lattice

- ○ charged ions are held firmly in place by strong electrostatic forces in the solid ionic lattice
- ○ ionic compounds have high melting temperatures

Question 14

Multiple choice (one answer)

Slightly charged ends of water molecules interact with charged ions in an ionic lattice. If the attraction is strong enough for the water to pull the ion away from the solid lattice, we can say that

- ○ the charged ions are rigidly held in place by strong electrostatic forces
- ○ it has a low melting temperature
- ○ it has a high melting temperature
- ○ the ionic compound has dissolved in the water

Question 15

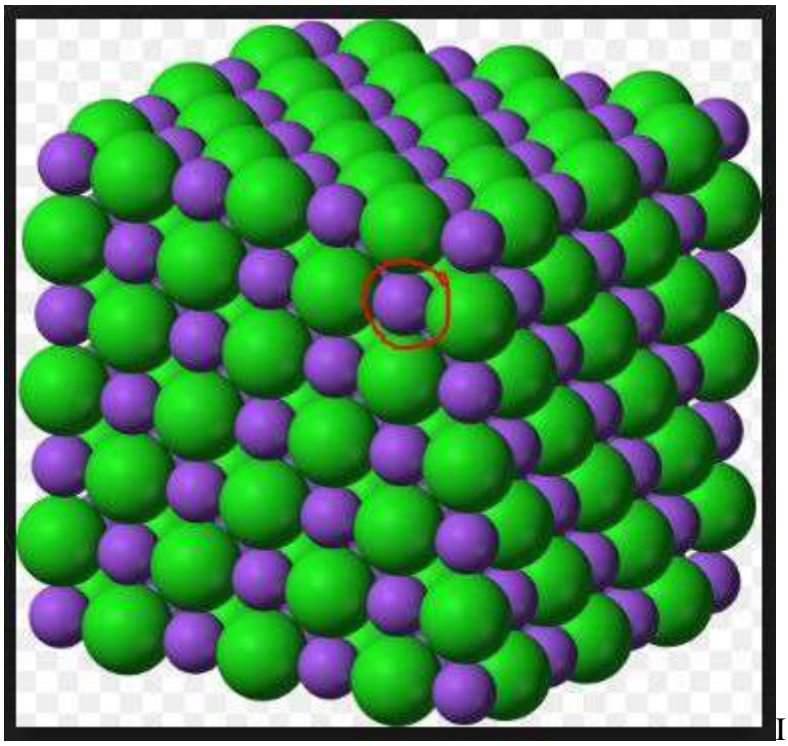
Multiple choice (one answer)

In an ionic bond,

- ○ charged ions are very strongly attracted to oppositely charged ions with an electrostatic force
- ○ electrons are shared unequally between atoms
- ○ electrons are shared equally between atoms

Question 16

Multiple choice (one answer)

 I

In this model of an ionic lattice for sodium chloride, each blue sodium ion will be electrostatically attracted to _____ green chlorine ions. Hint: don't just look at the circled ion, but rather imagine the arrangement around a blue sodium ion in the middle of this structure.

- ○ six
- ○ five
- ○ four
- ○ three

Question 17

Multiple choice (one answer)

Potassium is in Group 1 on the periodic table. How many valence electrons will its electron dot structure show?

- ○ 1
- ○ 7
- ○ 8
- ○ 2

Question 18

Multiple choice (one answer)

This is the electron dot structure for _____, and it shows _____ electrons.

- ○ potassium.....five
- ○ phosphorus.....five
- ○ potassium.....three
- ○ phosphorus.....three

Question 19

Multiple choice (one answer)

If a sodium atom has one valence electron, and the electron is lost during ionization, what will the charge be on a sodium ion?

- ○ -3
- ○ +2
- ○ +1
- ○ -1

Question 20

Multiple choice (one answer)

How many valence electrons does sulfur have?

- ○ 7
- ○ 6
- ○ 16
- ○ 5