1 When NaOH(s) is added to water, it spontaneously dissolves. This means that when NaOH(s) is dissolved in water, ...

A the solution heats up---heat is released (dissolving is exothermic)
B the solution cools down---heat is absorbed(dissolving is endothermic)
C further information needed

2 Is the process MX(s) --> M(g) + X(g), for example NaCl(s) --> Na(g) + Cl(g), exothermic or endothermic? The negative of this energy change is called the crystal formation energy.

A Endothermic (that is, crystal formation is exothermic)
B Exothermic (that is, crystal formation is endothermic)
C Need more information

3 Is the process M(g) --> M+(g) + e-, for example Na(g) --> Na+(g) + e-, exothermic or endothermic? The energy change is called the ionization energy.

A Ionization energy is negative (exothermic process)
B Ionization energy is positive (endothermic process)
C Need more information

4 Is the process X(g) + e- --> X-(g), for example Cl(g) + e- --> Cl-(g), exothermic or endothermic? The energy change is call the electron affinity.

A Electron affinity is slightly positive (endothermic process)
B Electron affinity is slightly negative (exothermic process)
C Need more information

5 Compared to ionization energies, electron affinities are ...

A much larger
B about the same
C much smaller

6 Is the process M(g) + X(g) --> M+(g) + X-(g), for example, Na(g) + Cl(g) --> Na+(g) + Cl-(g), exothermic or endothermic? The energy change is called the energy of ion formation.

A Energy of ion formation is positive (endothermic process)
B Energy of ion formation is negative (exothermic process)
C Need more information

7 Is the process MX(s) --> M+(g) + X-(g), for example NaCl(s) --> Na+(g) + Cl--(g), exothermic or endothermic? The energy change is called the lattice energy.

A Lattice energy is negative (exothermic process)
B Lattice energy is positive (endothermic process)
C Need more information

8 Is the process M+(g) + X-(g) --> M+(aq) + X-(aq), for example Na+(g) + Cl-(g) --> M+(aq) + X-(aq), exothermic or endothermic? The energy change is called the hydration energy.

A Hydration energy is negative (exothermic process)
B Hydration energy is positive (endothermic process)
C Need more information

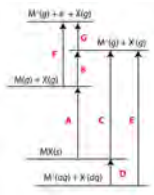
9 Is the process MX(s) --> M+(aq) + X-(aq), for example NaCl(s) --> Na+(aq) + Cl-(aq), exothermic or endothermic? The energy change in this process is energy of dissolving.

A Energy of dissolving is negative (exothermic process)
B Energy of dissolving is positive (endothermic process)
C Need more information

10 The sign of energy of dissolving predicts solubility ...

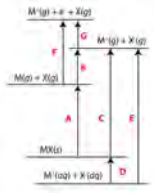
A only for exothermic dissolving
B only for endothermic dissolving
C for both exothermic and endothermic dissolving
D neither for exothermic nor endothermic dissolving

11 The energy change represented by upward arrow A is the ...



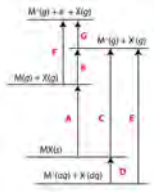
A lattice energy
B ion formation energy
C crystal formation energy
D none of the above

12 The energy change represented by upward arrow B is the ...



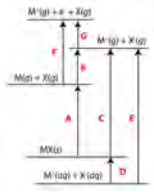
A lattice energy
B ion formation energy
C dissolving energy
D hydration energy

13 The energy change represented by upward arrow C is the ...



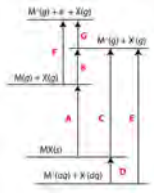
A lattice energy
B crystal formation energy
C dissolving energy
D hydration energy

14 The energy change represented by upward arrow D is the ...



A lattice energy
B ion formation energy
C dissolving energy
D none of the above

15 The energy change represented by upward arrow E is the ...



A lattice energy
B hydration energy
C crystal formation energy
D none of the above

16 An ionic solid is very soluble in water. This means its energy of dissolving is ...

A large and positive
B large and negative
C small and positive
D small and negative
E None of the above

17 Sucrose, $C_{12}H_{22}O_{11}$, dissolves in water. What makes sucrose soluble?

A lattice energy > hydration energy
B lattice energy < hydration energy
C lattice energy = hydration energy
D None of the above