1. A typical frequency of visible light is ...
   A  1011 Hz
   B  1013 Hz
   C  1015 Hz
   D  1017 Hz
   E  None of the above

2. What happens when an electron is placed in a bonding molecular orbital (MO) formed by combination of orbitals on two atoms?
   A  Potential energy becomes more negative.
   B  Potential energy becomes more positive.
   C  Kinetic energy becomes less positive.
   D  None of the above

3. An electron is in a bonding MO. What happens when the atoms forming the MO move closer together, from an very large initial separation?
   A  Potential energy becomes more negative.
   B  Kinetic energy becomes more positive.
   C  Total energy always becomes more negative.
   D  A & B
   E  None of the above

4. An electron is in a bonding MO. What happens when the atoms forming the MO move very close together?
   A  Potential energy becomes less negative
   B  Kinetic energy becomes less positive
   C  Total energy becomes less negative
   D  A & B & C
   E  None of the above

5. What happens when an electron is placed in an antibonding MO formed by combination of orbitals on two atoms?
   A  Potential energy becomes more negative.
   B  Potential energy becomes more positive.
   C  Kinetic energy becomes less positive.
   D  None of the above

6. An electron is in an antibonding MO. What happens when the atoms forming the MO move closer together, from an large initial separation?
   A  Potential energy becomes more negative.
   B  Kinetic energy becomes less positive.
   C  Total energy always become more negative.
   D  A & B
   E  None of the above
7 An electron is in an antibonding bonding MO. What happens when the atoms forming the MO move very close together?

A Potential energy becomes more negative
B Kinetic energy becomes less positive
C Total energy becomes more positive
D A & B & C
E None of the above

8 The length of a bond is the position of the minimum in the bonding MO total energy. At this distance, compared to the bond stabilization, the antibond destabilization is ...

A always less.
B always the same.
C always more.
D Further information needed.

9 H2 has two bonding electrons and no antibonding electrons. The total energy, relative to separated atoms, when two H atoms approach is ...

A always positive.
B always zero.
C negative at large separations and then positive at smaller separations.
D Further information needed.

10 He2 would have two bonding electrons and two antibonding electrons. The total energy, relative to separated atoms, when two He atoms approach is ...

A always positive.
B always zero.
C negative at large separations and then positive at smaller separations.
D Further information needed.