Energy flow

1. Gross primary production is highest in:
   o prairie
   o tundra
   ● a rainforest
   o a desert

2. In the carbon cycle, photosynthesis:
   o releases carbon dioxide into the atmosphere
   o releases carbon dioxide from the oceans
   ● fixes carbon in biomass
   o fixes carbon in carbonates

3. In the water cycle, photosynthesis:
   o converts liquid water into solid water
   o converts gaseous water to liquid water
   ● fixes hydrogen from water into biomass
   o converts glucose into water

4. The main reason why green plants cannot use nitrogen directly from the air is:
   ● the triple bonds holding the nitrogen atoms together in the molecule require too much energy to break them
   o nitrogen gas dissolves in water to produce a strongly acidic solution which would damage the plant cells
   o the nitrogen molecule is too unstable
   o nitrogen molecules are insoluble in water

5. The rate at which energy from sunlight is made available to consumers by green plants is known as a system’s:
   o growth rate
   o gross primary production
   ● net primary production
   o productivity

6. A system’s productivity is measured in:
   o kJ m\(^{-1}\) yr\(^{-1}\)
   o kJ m \(s^{-1}\)
   ● kJ m\(^{-2}\) yr\(^{-1}\)
   o kJ m\(^{-2}\) s\(^{-1}\)

7. When light energy is absorbed by chlorophyll during photosynthesis:
   o chlorophyll combines with carbon dioxide to produce glucose
   o chlorophyll decomposes to form glucose and water
   o chlorophyll is converted to ATP
   ● a high energy electron is released from the chlorophyll molecule

8. In green plants, energy is stored mainly in:
   o cellulose
   o ATP
   ● starch
   o glucose