Biology I Honors
EOC Exam Review: circulation

1. Which blood vessels carry blood from the heart to the rest of the system (various parts of the body)?

2. Which blood vessels connect arteries and veins to each other?

3. What is the function of veins?

4. What is the function of lymph?

5. Heart rate, or the rate at which the muscles in the heart contract, is controlled by the sinoatrial node, a group of cells in the cardiac muscle of the right atrium. Heart rate decreases when you are asleep and increases when you are awake. Some people require an artificial pacemaker to regulate their heart rate if it is too slow. Which hypothesis explains how the body might be affected by a dangerously slow heart rate?
   a. The body might have trouble falling asleep or feeling rested after a full night of sleep.
   b. Cells in the body might not receive enough oxygen, which could cause the person to faint.
   c. The adrenal gland might not produce enough hormones to prepare the body for a quick reaction.
   d. Breathing might become shallow, which could cause the person to retain too much carbon dioxide.

6. What is blood’s function in the body?

7. Read the following scenarios and respond to the questions in the table.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>How would this affect the blood pressure?</th>
<th>What is the affect on the blood flow?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol causes narrowing of the arteries.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>As you are exercising and your heart rate increases.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smokers are filling their lungs with many poisonous gases causing the hardening of their arteries as well as slowing the heart rate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survivors of heart attacks generally will lose a portion of their heart muscle. Sometimes as small as 10% can die, but in others up to half the heart muscle can die.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A runner in a marathon does not drink enough liquids and he becomes severely dehydrated.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Which body system performs this function in humans?
   a. circulatory system     c. excretory system
   b. digestive system                  d. respiratory system

Biology I Honors
EOC Exam Review: plants

Use the narrative below to answer the next 4 questions.

Plants Use Chemical Warfare Against Insects
In a study, seeds of wild radishes were planted in three separate groups. When the plants reached the four-leaf stage, a caterpillar known as the cabbage worm was allowed to chew at least one leaf on each plant in group A. One leaf was trimmed from each plant in group B. The leaves of group C were not treated in any way.

After being attacked by the cabbage worm, the plants in group A started making a sap containing large amounts of mustard glycoside. This chemical is responsible for the hot taste in horseradish. Insects find this chemical distasteful and tend to avoid it. Thus, it serves as a natural defense for the plant. In addition, new leaves on the plants in group A had more spikelike hairs, another type of defense against insects.

As the growing season progressed, the plants in groups B and C, none of which had been chewed by the cabbage worm, were heavily attacked by garden pests. The herbivorous insects avoided the plants in group A that had spicy sap and spiky leaves.

As a result of studies such as this, scientists are attempting to develop hormones that can be sprayed on crops to stimulate them to produce their own defenses against insects. This could allow farmers to obtain high yields of crops without having to use chemical pesticides, which would mean less harm to the environment.

1. The initial attack by insect herbivores is beneficial because
   a. chemicals that protect the plant against early herbivores are produced and passed to offspring through sexual reproduction
   b. the plants produce chemicals that protect them against herbivores that appear later
   c. chemical pesticides are produced, which are used by humans to protect the plants against herbivores
   d. spikelike hairs that attract predators of the early herbivores are produced

2. Later in the growing season, insects attacked the plants in
   a. group A 3                           c. group C, only
   b. group B, only                    d. groups B and C

3. Using one or more complete sentences, state the function of group C in this investigation.

4. Using one or more complete sentences, explain why the use of chemicals produced in nature against insects is better than the use of insecticides produced by humans.
5. The differences between plant and animal cells are

6. Which statement correctly describes a characteristic of cells in the stems of plants?
   a. They exchange gases through stomates for respiration.
   b. They exchange gases by diffusion directly between the cells and root hairs.
   c. They carry on photosynthesis and do not exchange gases.
   d. They carry on respiration and exchange gases through lenticels.

7. Vascular tissue that transports water is __________________________________________

8. Which plant structure allows for the exchange of oxygen and carbon dioxide?
   ______________________________________________________

9. Which type of plants do not contain seeds?
   ______________________________________________________

10. Which types of plants cannot grow very tall, and rely on water to aide in reproduction?
     ____________________________________________________

11. Which plant structure contains living cells that transport glucose? __________________________

12. In which plant structure does photosynthesis take place? ________________________________
13. Which statement accurately compares cells in the circulatory system to cells in the human nervous system?
   a. Cells in the circulatory system carry out the same life function for the organism as cells in the nervous system.
   b. Cells in the circulatory system are identical in structure to cells in the nervous system.
   c. Cells in the nervous systems are different in structure from cells in the circulatory system, and they both carry out different specialized functions.
   d. Cells in the nervous system act independently but cells in the circulatory system function together.