1. All of the following are characteristics of the pacemaker potential EXCEPT:

   a. The pacemaker potential occurs in the SA node before it occurs in the AV nodes
   b. During the repolarization phase, Ca++ leaves the pacemaker cells
   c. Na+ channels are open throughout the pacemaker potential
   d. A & C
   e. B & C

For Question 2, refer to the following table.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The P wave has occurred</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>The QRS wave has not occurred</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Ventricular volume is constant</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Ventricular volume is increasing</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>AV valve is closed</td>
<td>10</td>
</tr>
</tbody>
</table>

2. When the left ventricular is in diastole, which of the following MUST BE TRUE?

   a. 1, 2, 4, 6, 7
   b. 1, 2, 4, 6, 8, 10
   c. 2, 4, 6, 7
   d. 1, 2, 4, 6, 7, 9
   e. 2, 4, 6, 8, 10

3. All of the following describes how the endocrine system contributes to a human’s physiological response to stress EXCEPT:

   a. In response to short-term stress, post-ganglionic adrenergic neurons release epinephrine
   b. Feedback of CRH release is inhibited by ACTH
   c. Secretions produced by the zona glomerulosa increase gluconeogenesis
   d. Secretions produced by the zona fasiculata are controlled by the anterior pituitary gland
   e. Hormones produced by the adrenal cortex provide physiological resources to deal with long-term stress

Use the following information to answer Question 4.

I. Some receptors have high specificity for more than a single hormone
II. Some hormones have high specificity for more than a single type of receptor
III. Most lipid-based hormones require chaperones to activated their receptors
IV. Effects mediated by most plasma membrane receptors have shorter durations than those mediated by nuclear receptors

4. Of the characteristic listed above, which are NOT TRUE of the activation of plasma membrane receptors?

   a. I only
   b. I & III
   c. I, III & IV
   d. None of the above
   e. All of the above

5. In regards to the valves and chambers of the heart, which of the following is NOT TRUE?

   a. The papillary muscles for the AV valves are located in the wall of the ventricles
   b. The right and left ventricles eject the same amount of blood
c. The myocardium of the left ventricle is thicker than the right ventricle
d. The right SL valve prevents blood from flowing from the pulmonary veins into the right atrium
e. B & D

6. All of the following may occur during a humoral response EXCEPT:

a. B cells are induced
b. Plasma cells secrete immunoglobins
c. Antibodies formed against the pathogen bind to MHC I receptors on T cells
d. Antibodies formed against the pathogen may activate macrophages
e. B & C

7. Which of the following effector mechanisms occur when the antigen is soluble?

a. Neutralization
b. Precipitation
c. Agglutination
d. Opsonization
e. All of the above require macrophages

8. In regards to the coronary vessels, which of the following is TRUE?

a. The circumflex artery is the first branch off the right coronary artery
b. Blood must pass through the right coronary artery to enter the posterior inter-ventricular artery
c. The left coronary artery gives rise to the marginal branches
d. The anterior and posterior inter-ventricular arteries connect on the posterior surface of the heart
e. C & D

Use the information in the following table to answer Question 9.

<table>
<thead>
<tr>
<th>I</th>
<th>Anterior pituitary hormone</th>
<th>V</th>
<th>Released by neural stimulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Posterior pituitary hormone</td>
<td>VI</td>
<td>Released by humoral stimulus</td>
</tr>
<tr>
<td>III</td>
<td>Tropic hormone</td>
<td>VII</td>
<td>Released by hormonal stimulus</td>
</tr>
<tr>
<td>IV</td>
<td>Non-tropic hormone</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Which of the above are characteristics of the hormone that controls the production of milk?

a. I, III & V
b. II, III & V
c. I, IV & VII
d. II, IV & V
e. II, IV & VII

10. In regards to the intrinsic conductance system, which of the following is TRUE?

a. The SA and AV nodes both have autorhythmic cells
b. Cells in the AV node give rise to the bundle branches
c. Electrical signaling in the atria is spread via intercalated discs
d. Without the SA node the ventricles would not contract
11. The formation of memory cells is required for which of the following types of acquired immunity?
   
   a. Active naturally acquired immunity  
   b. Passive naturally acquired immunity  
   c. Active artificially acquired immunity  
   d. Passive artificially acquired immunity  
   e. A & C

12. In regards to inflammation, which of the following is TRUE?
   
   a. Histamine is released by mast cells  
   b. Damaged cells undergoes diapedesis to enter the blood stream  
   c. Inflammation can occur in both specific and non-specific immune responses  
   d. A & B  
   e. A, B & C

13. All of the following describes how the endocrine system contributes to a human’s physiological response to stress EXCEPT:
   
   a. Negative feedback control of the adrenal cortex is inhibited when the sympathetic nervous system is activated  
   b. Mineralocorticoids increase the amount of Na+ in the kidney filtrate  
   c. Cortisol levels are elevated when norepinephrine is present  
   d. Glucocorticoids increase the amount of metabolic energy available to deal with the stress  
   e. B & C