Answers to end-of-chapter questions

Humans as organisms

Chapter 9 Support and movement

It is very important that you are able to answer the questions on your own, using your own knowledge of Biology. Have a go at the questions first, and then check your answers using this page. If you get a question wrong, try to work out where you have made an error.

1. Bones, ligaments, muscles, contracts, relaxes, relaxes, antagonistic.

2. a) Biceps
   b) Triceps
   c) When one of the muscles contracts the other relaxes and vice versa.

3. a) Support, protection, movement, making red blood cells.
   b) An exoskeleton is found on the outside of the body and an endoskeleton is found on the inside of the body.
   c) Their exoskeletons become too heavy to allow efficient movement.
   d) With time an exoskeleton will start to restrict an animal’s growth. It then moults and produces a new larger exoskeleton.

4. | Column A       | Column B                                      |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>humerus</td>
<td>upper arm bone</td>
</tr>
<tr>
<td>pelvis</td>
<td>attaches the lower limb bones to the backbone</td>
</tr>
<tr>
<td>skull</td>
<td>protects the brain</td>
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<tr>
<td>femur</td>
<td>the largest bone in the body</td>
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<tr>
<td>vertebrae</td>
<td>there are many of these in the backbone</td>
</tr>
<tr>
<td>ribs</td>
<td>helps us to breathe in and out</td>
</tr>
</tbody>
</table>

5. a) Ligaments
   b) Tendons
   c) Cartilage

6. a) Ball and socket
   b) Hip and shoulder
   c) Movement in all directions
   d) Ligament. Ligaments hold bones together at a joint.
   e) Cartilage; acts as a shock absorber and stops two bones from rubbing together.
   f) Synovial fluid lubricates or oils the joint and makes movement easy.

7. a) A
   b) Relaxes
   c) The thumb is involved in complex movements like grasping things and manipulation. It has to be moved backwards and forwards by this antagonistic pair of muscles.

8. a) They provide support but also flexibility. They have joints between them, so you can bend and twist.
   b) i) Skull and pelvis where they allow no movement.
      ii) Neck where they allow nodding or turning.
      iii) Backbone where they allow slight movement during bending and twisting.
   c) So they are light and are able to fly.

9. a) Biceps and triceps.
   b) The triceps muscle would contract and the biceps muscle would relax so straightening the arm.
   c) i) The cartilage should be drawn around the ends of the three bones that come into contact during movement.
      ii) It acts as a shock absorber and stops bones rubbing together.
      iii) A = ligament, B = synovial membrane
      iv) The synovial fluid lubricates the joints. If it was not there movement of the joint would be very difficult.