Answers to Test your knowledge questions

Nelson Physical Education Studies for WA 2A,2B

Chapter 8

Page 154

**multiple choice**

1 D
2 D
3 B
4 A
5 B
6 B

**short answer**

7 (max 6 marks)
- Storage of minerals (1 mark)
- Manufacture of red blood cells (RBCs) used to transport gases around the body (1 mark)
- Manufacture of white blood cells important in the immune system in fighting disease (1 mark)
- Support and structure to the body: without bones the body would be similar to a jellyfish. (1 mark)
- Protection of organs: ribs and sternum for the heart, lungs, liver and skull for the brain. (1 mark)
- Allows movement: with muscles, tendons and ligaments, the bones are a critical part of the movement process. They are the structure that muscles pull against. (1 mark)

8 (max 4 marks)
- Long bones: the bones of the limbs and clavicle e.g. femur (1 mark)
- Short bones: the bones of the wrist and ankles e.g. carpals (1 mark)
- Flat bones: the bones sternum, ribs and shoulder blades (1 mark)
- Irregular bone: the bones that do not fit into the above category e.g. vertebrae (1 mark)

9 (max 4 marks)
- Muscles produce movement off the skeletal frame (1 mark)
- Muscles combine with the skeleton to provide structure to the body (1 mark)
• Origin: the end of the muscle attaching to the relatively fixed bone; the point of attachment is generally fixed during contraction.  
  
• Insertion: the end of the muscle attaching to the bone that will generally be freely moving.

10

Refer to the diagram on page 143

11 (max 4 marks)

• Red blood cells transport gases around the body.  
• Gases attach to the protein haemoglobin within the red blood cell.  
• Red blood cell count can be lifted by training harder. The stress on the body causes the adaptation of increased RBC count.  
• Altitude training and the enhancer EPO will both lift the hormone levels of EPO which in turn cause an increase in the number of RBCs.

12 (max 3 marks)

• Improved fitness levels will lower the resting HR as the heart and circulatory system become more efficient.  
• Efficiency gains are generally made by lifting stroke volume.  
• Sex: a female will generally have a higher resting HR as compared with males.  
• Age and body size: a younger and larger person will generally have a higher HR.  
• Body position: lying down can reduce the HR by 5–10 beats.

13 (max 3 marks)

• The walls of veins are thinner and less elastic than the walls of arteries. Arteries are under considerably more pressure than veins, hence the thicker walls.  
• Veins use a system of valves to prevent blood from flowing back.  
• Veins use the normally contraction of surrounding muscle (combining with the valves) to assist blood flow.  
• Arteries carry blood away from the heart and veins carry blood towards the heart.

essay style

14 Will depend on the particular sport. Use table 8.3 on pages 140–142 as a reference.

15 (max 10 marks)

• Discussion on muscles, tendon and ligaments (include definition, differences and role in movement)  
• Joint structure
- The importance of joint strapping, especially at the ankle. (1 mark)
- Stress fracture: an overuse injury that can become a simple fracture if left untreated. (1 mark)
- Stress fractures require a minimum of six weeks to heal. (1 mark)
- Major causes are poor equipment such as old shoes and poor technique. (1 mark)
- Muscle, ligament and tendon tears (1 mark)
- Ways to limit injuries to muscles: good balance, warm-up, fitness, good technique and good officiating. (1 mark)
- Treatment of the above: RICER (1 mark)
- Importance of NO-HARM (1 mark)

16 (max 7 marks)

1 mark for each stage covered on page 150.

17 (Max 10 marks)

- Plasma: the watery component that allows the blood to circulate easily. Also very important in the process of cooling the body. (1 mark)
- Red blood cells: carry gases around the body, primarily CO₂ and O₂. (1 mark)

- White blood cells: fight off disease/infection. (1 mark)
- Nutrients for the cells, includes glycogen. (1 mark)
- Hormones: the body’s on/off switches, are transported in the blood. (1 mark)
- Platelets: help the blood to clot to stop bleeding. (1 mark)
- Athletes will have increased blood plasma as an increase in fitness causes the blood volume to increase, especially if training in hot environments. (1 mark)
- Athletes will have a higher level of RBCs as the increased demand for O₂ causes a rise in the hormone EPO and then a rise in RBC production. (1 mark)
- White blood cell count will probably be the same. Endurance athletes have their immune system taxed as they have so much air going into their body, exposing them to more bacteria. (1 mark)
- Hormone levels of an athlete are higher. HGH increases in response to exercise and this in turn raises the amount of many other hormones. Also an increase in EPO. (1 mark)