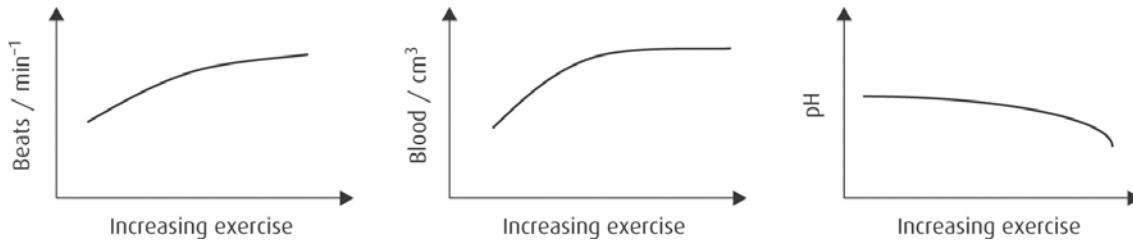
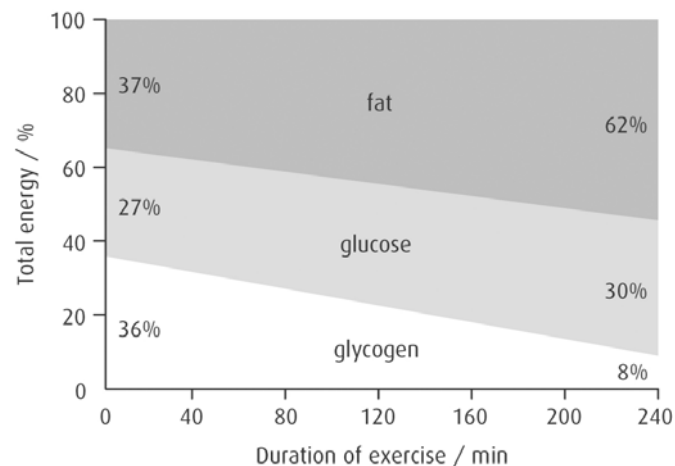


Extension worksheet – Option B

1 The three graphs below show the effect of exercise on the cardiovascular system.



- a** Define ‘cardiac output’. (1)
- b** Why does the cardiac output increase during exercise? (2)
- c** Why does blood pH decrease with increasing intensity of exercise? (1)
- d** How is the cardiac output increased during exercise? (2)
- 2 **a** How can training affect the muscles? Suggest **two** changes that can occur. (2)
- b** What are the features of slow-twitch muscles that make them efficient in endurance activities? (3)
- c** Creatine phosphate is used as a legal performance-enhancing substance. List some side-effects that may occur if high doses are used. (3)
- 3 During a prolonged period of exercise, different sources of energy are used as shown in the graph below:



- a** Which source supplies most energy to working muscles after two hours of exercise? (1)
- b** Compare the energy content of fat and glucose. (1)
- c** Why is glycogen used as an energy source when energy is required rapidly? (2)



- d** Define 'VO₂ max'. (1)
 - e** Comment on the source of energy used when a trained athlete is exercising at VO₂ max. (2)
 - f** Comment on the type of exercise being undertaken by the person whose data is shown in the graph at the bottom of the previous page. (2)
- 4** Outline the reasons for warm up routines and their importance to the athlete. (3)