The control of heartbeat

1. Fill in the following to show how the cardiac output is calculated:

Cardiac output = ………………………………………… x …………………………………………………

1. What units are these two components measured in?

……………………………………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………………………………………

1. Why does cardiac output need to change during exercise?

……………………………………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………………………………………

1. Cardiac output is controlled by the ……………………………………… centre which is found in the ………………………………… of the brain. It receives information from …………………………………… and ………………………………… receptors in the …………………………… and ……………………………… sinuses. It sends impulses via …………………………………… to the pacemaker (or …………………………………………) of the heart. Electrical impulses pass from the ………………………………………… across the atria to the …………………………………………… , and then down the …………………………………………………………… and across the ventricles. The ……………………………………… nerve will carry impulses that slow the heart rate down, and the ………………………………………… nerve will speed it up.
2. How does an increase in carbon dioxide in the blood lead to an increase in heart rate? (answer as a flow diagram)