Mark Scheme

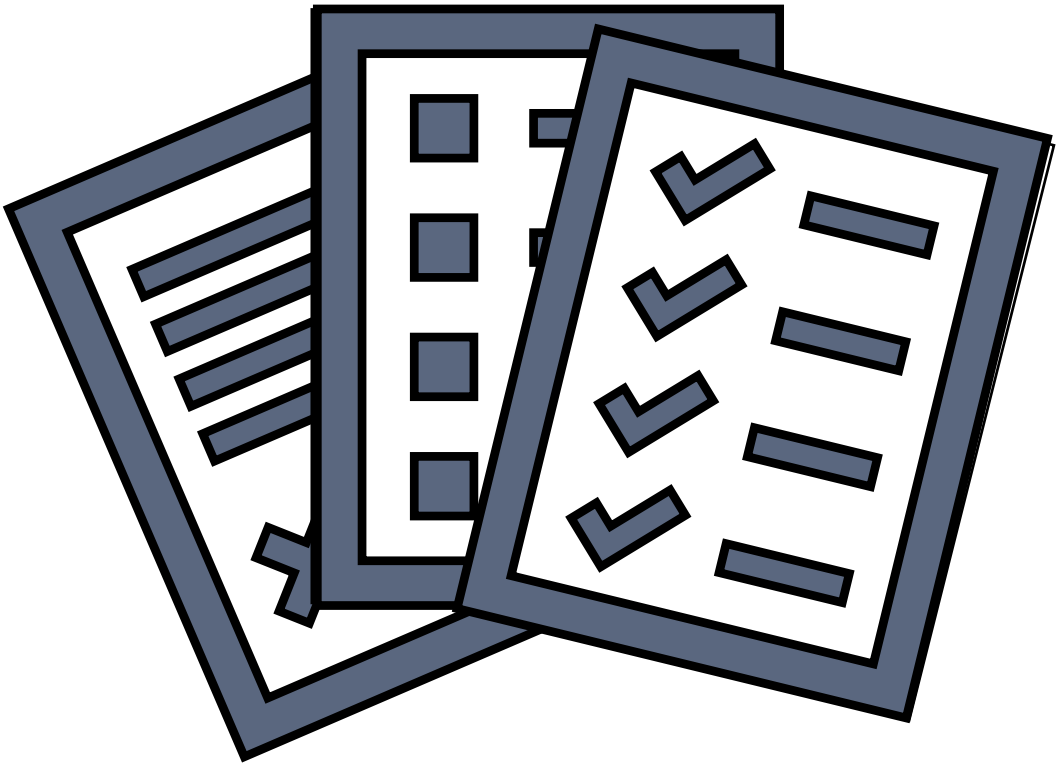
/ 18

The Cardiovascular System

ANSWERS

Name _____

Class _____



1. Draw a line from each type of receptor to its role description. **(3)**

Receptor	**Role**
Chemoreceptors	Detect change in blood pressure
Baroreceptors	Detect change in muscle movement
Proprioceptors	Detect change in blood acidity

2. Which of the following shows the correct order that is followed by the conduction system of the heart? **(1)**

A) Purkyne Fibres, Bundle of HIS, SA Node, AV Node

B) AV Node, SA Node, Bundle of HIS, Purkyne Fibres

C) AV Node, SA Node, Purkyne Fibres, Bundle of HIS

D) SA Node, AV Node, Bundle of HIS, Purkyne Fibres

3. **Starling's Law** outlines that during exercise there will be an increase in stroke volume? Explain the factors leading to this increase in stroke volume? **(3)**

Mark One – An increase in venous return

Mark Two – Results in increased diastolic filling of the heart

Mark Three – Cardiac Muscle/Wall is stretched

Other Possible Marks – Therefore there is a more powerful contraction/increased ejection fraction

4. Define the term 'stroke volume' and give a typical resting value for a trained individual. **(2 marks)**

Mark One - Stroke volume is the amount of blood pumped out of the heart / ventricles / left ventricle per beat

Mark Two - Any value within the range: 80 – 120ml

5. Describe four mechanisms of venous return that maintain blood flow back to the heart. **(4 marks)**

Four marks from:

- (Pocket) valves – (one-way valves) that prevent backflow of blood
- Muscle/ skeletal pump - skeletal muscles contract squeezing veins
- Smooth muscle - in walls of veins contracts / venoconstriction
- Respiratory pump - pressure differences in thoracic to abdominal cavity during breathing
- Gravity helps blood from above heart return to heart

6. Describe the specific process of vascular shunting during a football match, referring to the capillaries, receptors and vasomotor. **(5 marks)**

Mark One - An increase in carbon dioxide and lactic acid is detected by chemoreceptors

Mark Two - Chemoreceptors stimulate the vasomotor

Mark Three - Vasomotor signals for redistribution of blood flow

Mark Four - Vasodilation occurs around quads/hamstrings or Vasoconstriction occurs around the stomach

Mark Five - As the pre-capillary sphincters adjust blood flow into the capillaries