

A Level Biology A
H420/01 Biological Processes

Question Set 15

- 15 (a) A student looked at slides of different tissues under a light microscope.
The four viewed images are labelled **W**, **X**, **Y** and **Z** in Fig. 23.1.

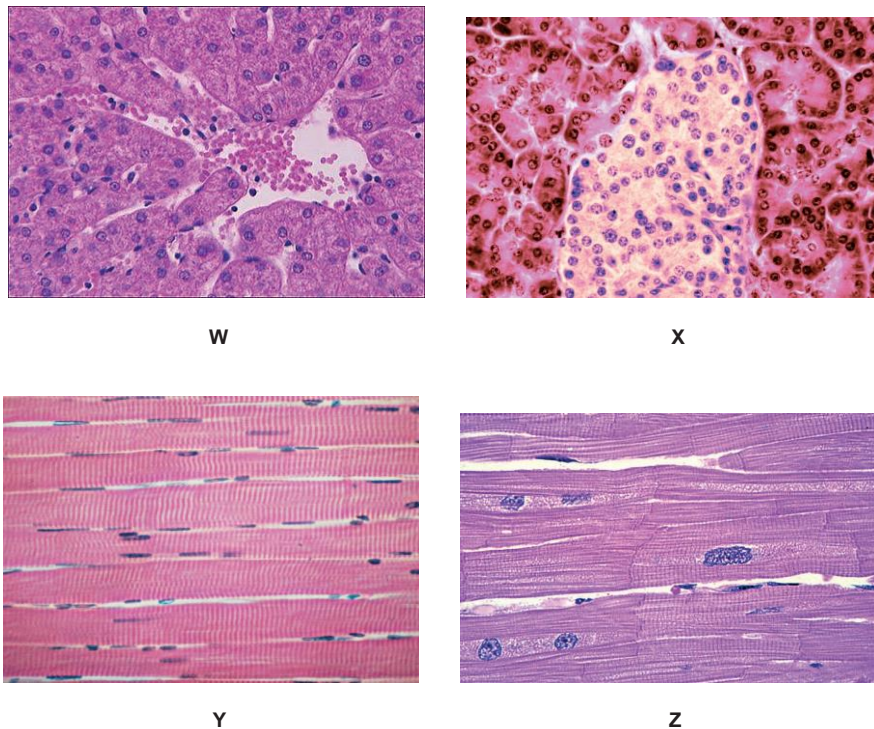


Fig. 23.1

Identify tissues **W**, **X** and **Y**.

- W** Hepatic tissue
X Pancreatic tissue
Y Skeletal muscle tissue

[3]

- 15 (b) The student wrote the following summary about the control of heart rate.

When the heart rate is too low the level of carboxylic acid in the blood becomes higher than normal. The vagus nerve sends action potentials to the AVN to increase the contraction rate of the heart muscle. The baroreceptors in the walls of the blood vessels then detect that the pH of the blood is normal, so heart rate can return to resting.

The endocrine system can also change heart rate. Release of the hormone adrenaline from the adrenal medulla causes the smooth muscle of the heart to contract more frequently.

Identify and correct any biological errors in the student's summary.

[4]

- 'Carboxylic acid' should be carbonic acid
 'Vagus nerve' should be accelerator nerve
 'AVN' should be SAN.
 'Baroreceptors' should be chemoreceptors
 'Smooth muscle' should be cardiac muscle.

15 (c) (i) Reflex actions are rapid responses that protect the body from harm.

The Moro reflex is found in babies up to five months of age, and occurs when the baby feels its head is suddenly no longer supported. The Moro reflex is made up of the following responses:

The baby spreads out its arms then brings them together rapidly.
The baby cries.

Suggest how the Moro reflex helps to prevent harm to a newborn baby.

**The splaying of its arms and rapidly bringing them together enables the baby to cling onto its mother. [2]
Crying helps to alert the baby's parents to its discomfort.**

15 (c) (ii) Reflex actions are rapid responses that protect the body from harm.

The Moro reflex is found in babies up to five months of age, and occurs when the baby feels its head is suddenly no longer supported. The Moro reflex is made up of the following responses:

The baby spreads out its arms then brings them together rapidly.
The baby cries.

The Moro reflex gradually disappears and usually stops completely after babies reach nine months. Other reflexes develop as children grow older.

Describe a reflex response a 3-year-old child would make to an object moving towards their eyes **and** explain the advantage of this response. **(see below)** [3]

Closing the eyes. This is an involuntary response and helps to protect the eyes from damage.

Total Marks for Question Set 15: 12

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