1.2 Nutrition and Digestion: 10-minute Pack

Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Design a simple practical to test whether lipase digests fat using a visible change. Describe the key steps, one safety or ethical point, and what you would measure to decide if digestion occurred.

(a) Describe the key steps of the practical. **(2)**

(b) Give one safety or ethical point. **(1)**

(c) State what you would measure to decide if digestion occurred. **(1)**

2 Explain briefly what is meant by peristalsis in the digestive system.

(a) Give definition and how it moves food. **(2)**

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3 Describe two features of the small intestine that help absorption of nutrients, and explain how each feature helps absorption.

(a) Feature 1 and explanation. **(1)**

(b) Feature 2 and explanation. **(1)**

4 A student adds a drop of iodine solution to a sample of food extract and the liquid turns blue-black. What does this result show? State the test and the conclusion.

(a) Name the test used. **(1)**

(b) Give the conclusion from the blue-black colour. **(1)**

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Mark scheme · 1.2 Nutrition and Digestion: 10-minute Pack

Question 1

(a) mix known volume of fat emulsion with lipase solution in test tube or use series at different times — **M1**

(a) state a final step such as observe formation of clear layer or measure pH change due to fatty acid production, cao — **A1**

(a) Answer: **Mix a measured volume of fat emulsion with lipase solution, incubate at a set temperature, and observe samples over time for the emulsion becoming clearer or a pH drop indicating fatty acid formation.**

(b) one safety/ethical point such as wear goggles, heat carefully, dispose of waste down drain with plenty of water, or do not taste samples — **B1**

(b) Answer: **Wear safety goggles and avoid tasting any samples; dispose of enzyme solutions according to school rules.**

(c) measure time taken for emulsion to clear or record pH change magnitude or record amount of clear layer, oe — **B1**

(c) Answer: **Measure time for the fat emulsion to become clearer or measure the change in pH indicating fatty acid production.**

Question 2

(a) muscular contractions in the gut wall move food along — **M1**

(a) these waves push food in one direction toward the stomach or intestines, oe — **A1**

(a) Answer: **Peristalsis is waves of muscular contraction in the gut wall that push food along in one direction through the digestive system.**

Question 3

(a) villi increase surface area with explanation that larger surface area increases absorption rate — **M1**

(a) Answer: **Villi increase surface area so more nutrients can be absorbed quickly.**

(b) each villus has many blood capillaries so absorbed nutrients are carried away, maintaining concentration gradients — **M1**

(b) Answer: **Each villus has many capillaries to carry away absorbed nutrients, keeping the concentration gradient high and aiding diffusion.**

Question 4

(a) iodine test for starch (or iodine solution) cao — **B1**

(a) Answer: **Iodine test for starch**

(b) starch is present in the sample (cao) — **B1**

(b) Answer: **Starch is present in the sample.**

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