

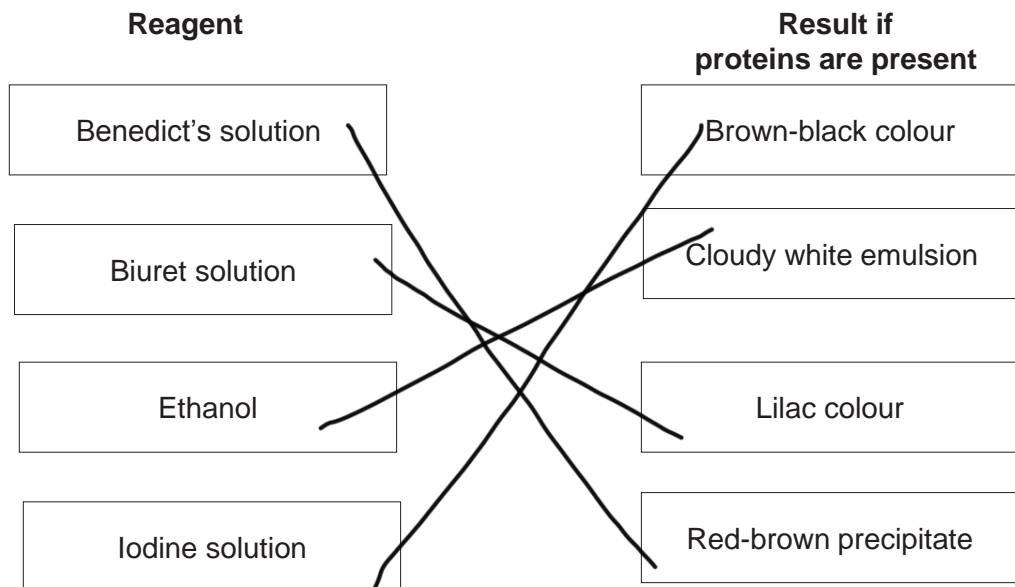
GCSE Biology B (Twenty First Century Science)
J257/04 Depth in biology (Higher Tier)

Question Set 14

1 Milk contains proteins and other nutrients.

(a) Milk can be tested for proteins by adding a reagent.

Draw **one** line to connect the correct **reagent** with the correct **result if proteins are present**



(b) Carbohydrates, lipids and proteins are all nutrients found in milk. Digestion breaks them down into smaller molecules that are absorbed into the blood.

[2]

Complete the table to identify the smaller molecules.

Large molecule	Smaller molecules it is broken down into
Carbohydrate	Sugars
Lipid	fatty acids AND glycerol
Protein	amino acids

[2]

(c)* Milk contains a carbohydrate called lactose. Only people with a particular mutation in their DNA can digest lactose.

If people **without** the mutation drink milk, they can suffer very unpleasant stomach pains and diarrhoea.

The mutation first appeared in a small number of people approximately 10 000 years ago. It is now found in almost half the world's population.

Lactose is another source of energy thus being able to digest lactose would provide advantage.

Individuals with the mutation can drink milk without feeling ill as they can digest lactose. Therefore, they are more likely to survive and reproduce. This mutation is passed on to their offspring as they inherit the advantageous allele so the mutation continues to be passed on to each generation. Over time, the frequency of this allele increases and more people become lactose tolerant.

Total Marks for Question Set 14: 10

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