**Name**..... **Date**.....

**The test for glucose theory/practical**

Students were given the following instructions, study them and answer the questions,

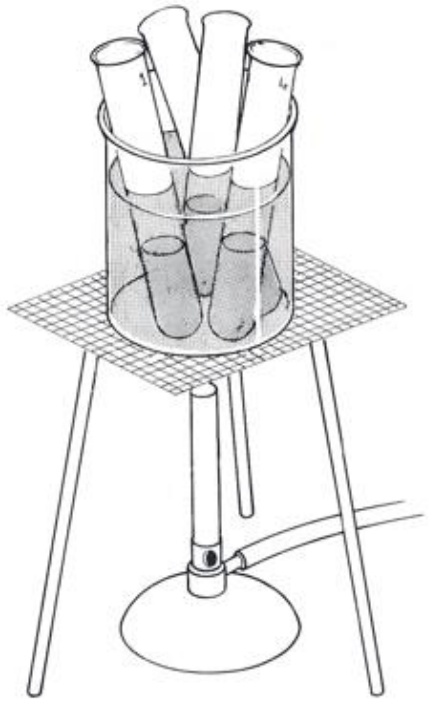
**(a)** Half fill a beaker with tap water and place it on a tripod and gauze. Heat the water with a Bunsen burner. While waiting for the water to boil, carry on with instructions (b) to (d).

**(b)** Label four test-tubes 1-4.

**(c)** Put 2 mm (*depth*) of
- 1% starch solution into tube 1
- 10% glucose solution into tube 2
- 1% albumen solution into tube 3
- water into tube 4

**(d)** To each tube add about 2 $cm^3$ Benedict's solution.

**(e)** Place the test-tubes in the beaker of hot water (*see* Figure below), and adjust the flame to keep the water just boiling, then predict and complete the table below.



Heat the test-tubes in a water bath

**(f)** After about 5 minutes, turn out the flame. Place the four tubes in a test-tube rack and compare the colours. Record the results in the table below and match the final colours as nearly as possible with crayons/colouring pencils/coloured stickers. (8 marks)

| Test tube | *Food Substance* | *Reagent's Colour change on* ***heating to boil*** | *Final colour* crayons/colouring pencils/coloured stickers |
|---|---|---|---|
| 1 | 1% starch | | |
| 2 | 10% glucose | | |
| 3 | 1% albumen | | |
| 4 | water | | |

**1**What colour changes took place when Benedict's solution was added to each liquid? (1 mark)

……

**2** The solutions selected for testing are examples of three of the principal chemical substances found in cells: glucose/reducing sugar, starch, protein (albumen). With which of these food materials did Benedict's solution give a decisive change on heating to boil? (1 mark)

……

**3** Apart from the colour, what change took place in the consistency of the Benedict's solution? (1 mark)

……

**4** Would the results indicate that any sugar (e.g. sucrose, fructose and maltose) will give the same colour as glucose did when tested with Benedict's solution? (1 mark)

……

**5** Would the results allow you to say that;
(a) no protein will give a colour change when heated with Benedict's solution,
(b) albumen never reacts with Benedict's solution to give a colour change ? (1 mark)

……

**6** Can you predict that glucose will always give the same result with Benedict's solution as it did in the experiment? (1 mark)
……

**7** Why was water included in the test? (1 mark)