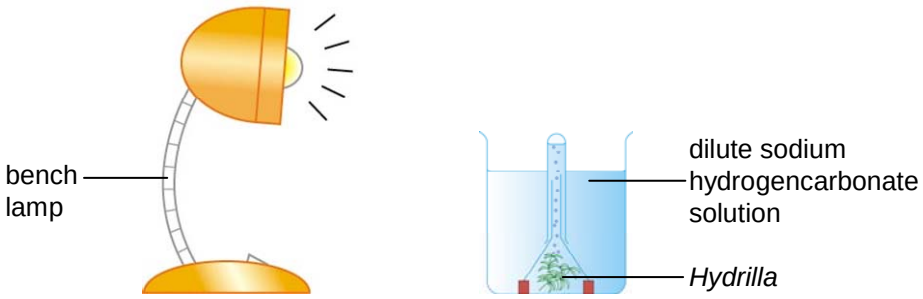
-- Question --

a Write a word equation for photosynthesis. (2 marks)

b The diagram below shows an experimental set-up, which was used to investigate the effect of light intensity on the rate of photosynthesis. The beaker was put at different distances from the bench lamp.



The number of gas bubbles released from *Hydrilla* was recorded. The results are shown in the table below.

Distance from lamp (cm)	**Number of gas bubbles per minute**
40	50
80	48
120	38
160	20
200	20

i Present the results in the form of a graph. (4 marks)

ii What would be the number of gas bubbles released in a minute when the lamp was placed at a position 140 cm from the lamp? (1 mark)

iii Referring to the results, describe how the rate of photosynthesis of *Hydrilla* changes with light intensity. (2 marks)

iv Suggest how the set-up can be modified to investigate the effect of carbon dioxide concentration on the rate of photosynthesis. (3 marks)

-- Answer --

a Carbon dioxide + water → carbohydrates + oxygen 2m

b **i** Correct title 1m

Choice of axes (x-axis: distance from lamp, y-axis: number of gas bubbles per minute) 1m

With labels and units 1m

Correct plotting and joining of line 1m

ii 29 1m

iii When the distance between the lamp and the beaker is 40 cm to 160 cm, the rate of photosynthesis decreases as light intensity decreases. 1m

When the distance between the lamp and the beaker is larger than 160 cm, the rate of photosynthesis remains the same as light intensity decreases. 1m

iv Set up a few beakers with the same mass of *Hydrilla* 1m

but different concentrations of dilute sodium hydrogencarbonate solution. 1m

Put all the beakers under the same light intensity / at the same distance from the lamp. 1m