

Diffusion, Brownian Motion, Solids/Liquids/Gases

Mark Scheme

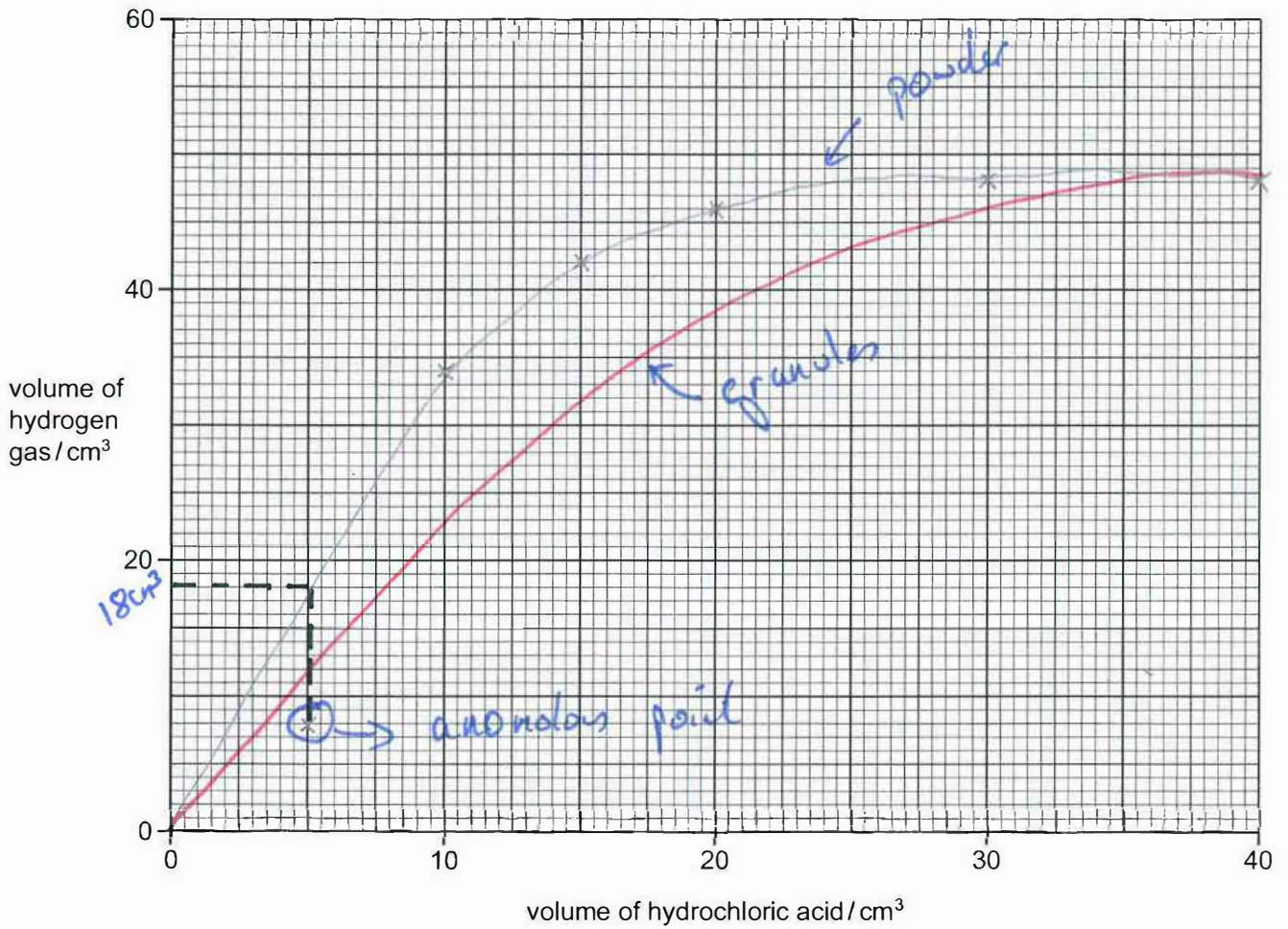
Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	The Particulate nature of matter
Sub-Topic	Diffusion, Brownian Motion, Solids/Liquids/Gases
Paper Type	Alternative to Practical
Booklet	Mark Scheme

Time Allowed: 46 minutes

Score: /38

Percentage: /100

- 1 (a) volumes of hydrogen completed correctly (3) [3]
0, 8, 34, 42, 46, 48, 48
guidance: 7 correct (3); 6 correct (2); 5 correct (1); 4 or fewer correct (0)
- (b) points plotted correctly including origin (3)
guidance: 7 correct (3); 6 correct (2); 5 correct (1); 4 or fewer correct (0)
smooth curve missing anomalous point (1) [4]
- (c) point at $5\text{ cm}^3 / 8\text{ cm}^3 \text{ H}_2$ / second point (1) [1]
- (ii) leak / loss / escape of gas or wrong amount / too little HC / or zinc (1) [1]
allow: syringe sticking
- (iii) reading from graph (1) \pm half small square
indication on graph (1) [2]
- (d) excess acid (1)
all zinc reacted (1) [2]
allow: used up
- (e) sketch curve identical (2)
different curve levelling out at 48 cm^3 (1)
note: must be some indication of a second curve [2]



[4]

- 2 (a) arrow under copper oxide (1) [1]
- (b) black (1) to brown/red (1) [2]
- (c) diagram of tube entering test-tube or similar in beaker of cold water/ice/Liebig condenser (1) [2]
labelled water/ice/condenser (1)
- (d) extinguished/goes out (1) **not:** no effect/no reaction [1]
- 3 (a) flask (1)
tap/separating/dropping funnel (1) not burette
gas jar (1) accept measuring cylinder [3]
- (b) gas should be collected downwards owtte (1) [1]
- (c) to remove impurities/water (1) [1]
- 4 (a) volumes completed correctly
0, 60, 68, 95, 98, 99, 100 -1 for each incorrec [4]
- (b) points plotted correctly (3) -1 for each incorrec
smooth curve (1) [4]
- (c) point at 2 minutes (1) off curve owtte (1) [2]
- (d) steeper curve (1)
levels out at same volume (1) [2]