

Conduct an experiment to study the effect of temperature on the activity of the enzyme amilase based on the following steps:

- 1 Sukat 5ml ampaian kanji 1% dan masukkan ke dalam tabung uji berlabel X.
Measure 5ml of the 1% starch suspension and put it in the test tubes labeled X.
- 2 Ulang langkah 1 untuk tabung uji Y.
Repeat step 1 for test tube Y.
- 3 Masukkan 2ml larutan enzim amilase 1% ke dalam tabung uji X dan tabung uji Y.
Add 2ml amylase enzyme solution 1% into test tube X and test tube Y.
- 4 Jalankan ujian iodine ke atas ampaian dalam tabung uji X dan tabung uji Y.
Carry out the iodine test on the suspension in test tube X and test tube Y.
- 5 Rendamkan tabung uji X di dalam bikar berisi air suam manakala tabung uji Y di dalam bikar berisi ais seperti yang ditunjukkan dalam Rajah 1.
Catatkan suhu air suam menggunakan termometer: ____ °C.
Catatkan suhu ais menggunakan termometer: ____ °C.

Soak test tube X in a beaker of water contain warm water while test tube Y in a beaker contain ice as shown in Diagram 1.
Record the temperature of the warm water using a thermometer: ____ °C.
Record the temperature of the ice using a thermometer: ____ °C.
- 6 Mulakan jam randik.
Start the stopwatch.
- 7 Jalankan ujian iodine selepas 10 minit.
Carry out iodine test after 10 minutes.



Diagram 1

Berdasarkan eksperimen yang dijalankan:

Based on the experiment conducted:

- (a) Kenal pasti pemboleh ubah dimalarkan.

Identify the constant variable.

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[1 markah]

[1 mark]

- (b) (i) Apakah faktor yang dimanipulasikan?

What is the factor that is manipulated?

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[1 markah]

[1 mark]

- (ii) Terangkan bagaimana faktor jawapan b(i) dikendalikan.

Explain how the factor in answer b(i) is handled.

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[1 markah]

[1 mark]

- (c) Nyatakan langkah-langkah ujian iodin.

State the procedures for iodine test.

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Tabung uji Test tube	Pemerhatian ujian iodine Iodine test observation	
	Awal Initial	Akhir Final
X		
Y		

[2 markah]

[2 marks]

- (ii) Nyatakan satu inferens bagi pemerhatian pada tabung uji X dalam 1(d) (i).

State an inference for the observation on test tube X in 1(d) (i).

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[1 markah]

[1 mark]

- (e) Tuliskan hipotesis eksperimen ini.

Write the hypothesis of this experiment.

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[2 markah]

[2 marks]

- (f) (i) Sekiranya ampaiian di tabung uji X ditambah dengan asid hidroklorik. Ramalkan pemerhatian anda.

If the suspension in test tube X is added with hydrochloric acid. Predict your observation.

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[1 markah]

- (ii) Beri alasan kepada jawapan anda di (f) (i).

Give the reason for your answer in (f) (i).

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[1 markah]

[1 mark]

- (g) (i) Seorang suri rumah menggunakan serbuk pencuci mengandungi amilase untuk mencuci baju yang terkena kesan darah. Beliau mendapati kesan darah masih ada. Terangkan mengapa.

A housewife uses an amylase-based detergent to wash her blood stained clothes. She found out that the stain is not removed. Explain why.

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[2 markah]

[2 marks]

- (ii) Cadangkan satu enzim yang sesuai untuk menyingkirkan kesan darah tersebut.

Suggest a suitable enzyme to remove the blood stain.

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[1 markah]

[1 mark]