

SENARAI SEMAK CALON
CANDIDATE'S CHECKLIST

ARAHAN

Tandakan (/) atau (X) pada ruang kotak yang disediakan untuk menyemak bahan dan radas yang disediakan dan dibekalkan.

INSTRUCTION

Mark (/) or (X) in the box provided to check the materials and apparatus prepared and supplied.

Bil. No.	Bahan / Radas <i>Materials / Apparatus</i>	Kuantiti <i>Quantity</i>	Ya (/) / Tidak (X) <i>Yes (/) / No (X)</i>
1	Tabung didih berisi larutan natrium klorida berkepekatan 0.0% berlabel P1 <i>The boiling tube with concentration 0.0% sodium chloride labeled P1</i>	20 ml	
2	Tabung didih berisi larutan natrium klorida berkepekatan 0.5% berlabel Q1 <i>The boiling tube with concentration 0.5% sodium chloride labeled Q1</i>	20 ml	
3	Tabung didih berisi larutan natrium klorida berkepekatan 1.0% berlabel R1 <i>The boiling tube with concentration 1.0% sodium chloride labeled R1</i>	20 ml	
4	Tabung didih berisi larutan natrium klorida berkepekatan 1.5% berlabel S1 <i>The boiling tube with concentration 1.5% sodium chloride labeled S1</i>	20 ml	
5	Tabung didih berisi larutan natrium klorida berkepekatan 2.0% berlabel T1 <i>The boiling tube with concentration 2.0% sodium chloride labeled T1</i>	20 ml	
6	Ubi kentang (besar) <i>Potato (big)</i>	1 biji	
7	Penebuk gabus 1.5 cm <i>1.5 cm cork borer</i>	1 unit	
8	Pisau <i>Knife</i>	1 unit	
9	Pembaris plastik 15 cm <i>15 cm plastic ruler</i>	1 unit	
10	Rak tabung didih <i>Boiling tube rack</i>	1 unit	
11	Jubin putih <i>White tile</i>	1 unit	
12	Forsep <i>Forcep</i>	1 unit	
13	Jam randik <i>Stopwatch</i>	1 unit	

Langkah keselamatan / Safety precaution

Berhati-hati apabila menggunakan pisau.

Be careful when using the knife.

SOALAN
QUESTION

Eskperimen ini dijalankan bertujuan untuk menentukan kepekatan larutan Natrium Klorida (NaCl) yang isotonik terhadap sap sel cakera ubi kentang.

This experiment was conducted to determine the concentration of Sodium Chloride (NaCl) solution which is isotonic to potato disc cell sap.

Anda dikehendaki menjalankan eksperimen berdasarkan langkah-langkah yang berikut:
You are required to carried out the experiment based on the following steps:

Langkah 1 : Tebuk ubi kentang dengan menggunakan penebuk gabus berukuran 1.5 cm bagi mendapatkan satu silinder ubi kentang.

Step 1 Punch the potatoes using a 1.5 cm cork borer to obtain a cylinder of potatoes.

Langkah 2 : Silinder ubi kentang dipotong kepada lima belas kepingan cakera dengan ketebalan 3 mm.

Step 2 The potato cylinder is cut into fifteen discs with a thickness of 3 mm.

Langkah 3 Ukur diameter awal tiga cakera ubi kentang bersama-sama dengan menggunakan pembaris dan bacaan bagi ketiga-tiga cakera direkodkan seperti Rajah 1 sebelum dimasukkan ke dalam larutan NaCl – P1, Q1, R1, S1 dan T1 .

Step 3 Measure the initial diameter of the three potato discs together using a ruler and the readings for three potato discs were recorded as shown in Diagram 1 before it immersed into NaCl solution -. P1, Q1, R1, S1 and T1.

P1:

Q1:

R1:

S1:

T1:

Langkah 4 : Ketiga-tiga cakera ubi kentang dimasukkan ke dalam setiap tabung didih P1, Q1, R1, S1 dan T1 yang mengandungi larutan NaCl berkepekatan 0.0%, 0.5%, 1.0%, 1.5% dan 2.0% secara serentak.

Step 4 The three potato discs were placed in each boiling tube P1, Q1, R1, S1 and T1 containing NaCl solution of 0.0%, 0.5%, 1.0%, 1.5% and 2.0% concentrations simultaneously.

Langkah 5 : Jam randik dimulakan.

Step 5 The stopwatch is started.

Langkah 6 : Cakera ubi kentang direndam selama 20 minit.

Step 6 The potato discs are soaked for 20 minutes.

Langkah 7 : Selepas 20 minit, cakera ubi kentang dikeluarkan dan dilap menggunakan kertas turas.

Step 7 After 20 minutes, the potato discs are removed and wiped with filter paper.

Langkah 8 : Diameter akhir tiga cakera ubi kentang diukur bersama-sama dengan menggunakan pembaris dan bacaan direkodkan.

Step 8 The final diameter of the three potato discs were measured together using a ruler and the readings were recorded.

P1:

Q1:

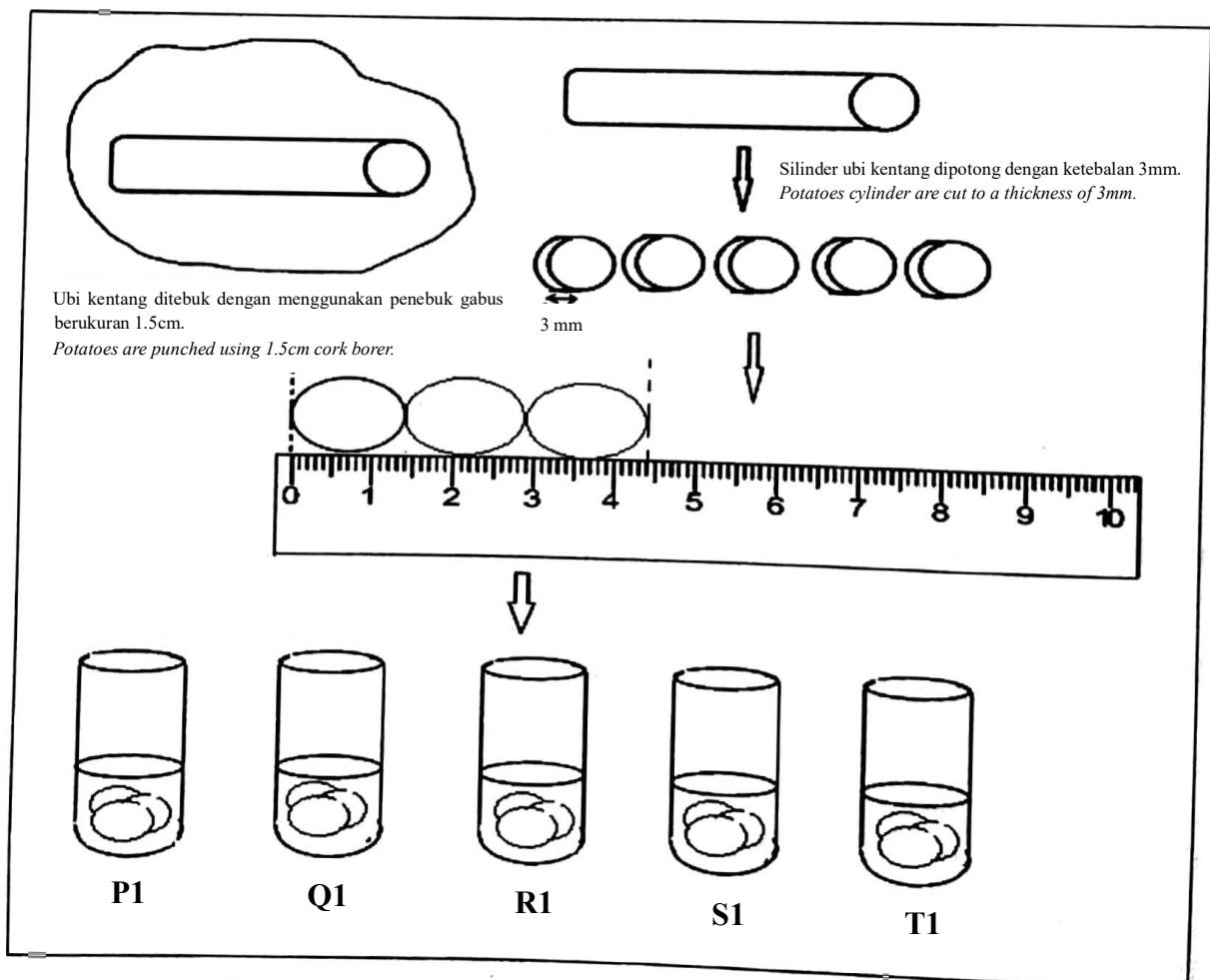
R1:

S1:

T1:

Langkah 9 : Semua langkah-langkah eksperimen ini diringkaskan dengan merujuk kepada Rajah 1 di bawah :

Step 9 All these experimental steps are summarized with reference to Diagram 1 below:



Rajah 1
Diagram 1

Jawab soalan berikut.

Answer the questions.

- a) Dengan menggunakan ruangan yang disediakan dalam langkah 3 dan 8, rekodkan diameter awal dan akhir yang diperolehi.

By using the space provided in steps 3 and 8, record initial and final diameter that obtained.

[4 markah/marks]

- b) Dengan menggunakan kertas graf yang disediakan di muka surat 7,

By using the graph paper provided on page 7,

- (i) Lukiskan graf perbezaan diameter melawan kepekatan larutan NaCl.

Draw a graph of the difference in diameter against the concentration of NaCl solution.

[3 markah/marks]

- (i) Tentukan peratus kepekatan larutan yang isotonik terhadap sap sel cakera ubi kentang.

Determine the percentage concentration of the isotonic solution to the cell sap of potato discs.

[1 markah/mark]

- c)(i) Nyatakan pemboleh ubah yang dimalarkan bagi eksperimen ini.

State the constant variables for this experiment.

[1 markah/mark]

- (ii) Nyatakan hipotesis bagi eksperimen ini.

State the hypothesis for this experiment.

[2 markah/marks]

- d) Merujuk kepada tabung didih T1, terangkan hubungan diameter tiga cakera ubi kentang dengan peningkatan masa rendaman jika dibiarkan selama satu hari.

Refer to the boiling tube T1, explain the relationship of the diameter of the potato disc with the increase in immersion time if left for one day.

[2 markah/marks]

e)(i) Jika seorang pelayar yang hanyut di tengah lautan meminum air laut , nyatakan fenomena yang akan berlaku terhadap sel eritrosit.

If a sailor drifting in the middle of the ocean drinks seawater, state the phenomenon that will occur to the erythrocyte cells.

[1 markah/mark]

(ii) Berikan inferens

Give the inference.

[1 markah/mark]

KERTAS PEPERIKSAAN TAMAT.
END OF QUESTION PAPER.

