

# JAWAPAN KERTAS 3

## SET 1

| Soalan<br>Question |         | Jawapan<br>Answer                                                                                                                                                                                                                                                                                                                                     | Markah<br>Mark |        |
|--------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|
| 1.                 | (a) (i) | Saiz molekul<br><i>Size of molecule</i>                                                                                                                                                                                                                                                                                                               | 1              |        |
|                    | (ii)    | Pergerakan bahan-bahan merentasi tiub Visking<br><i>Movement of substances across the Visking tube</i>                                                                                                                                                                                                                                                | 1              |        |
|                    | (b)     | Molekul kecil (seperti glukosa dan iodin) dapat merentasi membran telap memilih manakala molekul besar (kanji) tidak dapat merentasi membran telap memilih.<br><i>Small molecules (glucose / iodine) can diffuse through the selectively permeable membrane but big molecules (starch) cannot diffuse through the selectively permeable membrane.</i> | 1              |        |
|                    | (c) (i) | P1 Warna di dalam tiub Visking berubah kepada biru tua<br><i>The colour in Visking tube changes to dark blue</i>                                                                                                                                                                                                                                      | 1              |        |
|                    |         | P2 Warna di dalam tabung didih masih sama<br><i>The colour in boiling tube remain the same</i>                                                                                                                                                                                                                                                        | 1              |        |
|                    | (ii)    | P1 Perubahan warna ini menunjukkan molekul iodin telah merentasi tiub Visking dan bertindak balas dengan kanji<br><i>The colour changes show that iodine molecules have diffuse across the Visking tube and react with the starch</i>                                                                                                                 | 1              |        |
|                    |         | P2 Molekul iodine adalah kecil<br><i>Iodine molecules are very small</i>                                                                                                                                                                                                                                                                              | 1              |        |
|                    |         | P3 Molekul kanji adalah besar<br><i>Starch molecules are very large</i>                                                                                                                                                                                                                                                                               | 1              |        |
|                    |         | P4 Molekul kanji tidak dapat merentasi tiub Visking dan memasuki larutan iodin.<br><i>Starch molecules cannot diffuse across the Visking tube into the iodine solution</i>                                                                                                                                                                            | 1              |        |
|                    | (d)     |                                                                                                                                                                                                                                                                                                                                                       |                | Max: 3 |
|                    |         |                                                                                                                                                                                                                                                                                                                                                       |                |        |
|                    |         |                                                                                                                                                                                                                                                                                                                                                       |                |        |

|                                     | Kandungan<br>Contents                                                             | Warna asal<br>Initial colour        | Warna akhir<br>Final colour  | Ujian Benedict<br>Benedict's test                   |
|-------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------|------------------------------|-----------------------------------------------------|
| Tiub Visking<br><i>Visking tube</i> | Ampaian kanji dan larutan glukosa<br><i>Starch suspension and gluose solution</i> | Tidak berwarna<br><i>Colourless</i> | Biru tua<br><i>Dark blue</i> | Mendakan merah bata<br><i>Brick red precipitate</i> |
| Tabung didih<br><i>Boiling tube</i> | Air dan larutan iodin<br><i>Water and iodine solution</i>                         | Kuning<br><i>Yellow</i>             | Kuning<br><i>Yellow</i>      | Mendakan merah bata<br><i>Brick red precipitate</i> |

| Soalan<br>Question |                                                                                                                                                                                                                                                                                                                             | Jawapan<br>Answer                                                                          | Markah<br>Mark |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------|
| (e)                | <b>Bahan-bahan dalam eksperimen</b><br><i>Substances in experiment</i>                                                                                                                                                                                                                                                      | <b>Bahan-bahan atau struktur dalam badan</b><br><i>Substances or structure in the body</i> | 2              |
|                    | Iodin<br><i>Iodine</i>                                                                                                                                                                                                                                                                                                      | Karbon dioksida<br><i>Carbon dioxide</i>                                                   |                |
|                    | Kanji<br><i>Starch</i>                                                                                                                                                                                                                                                                                                      | Fibrinogen<br><i>Fibrinogen</i>                                                            |                |
|                    | Glukosa<br><i>Glucose</i>                                                                                                                                                                                                                                                                                                   | Oksigen<br><i>Oxygen</i>                                                                   |                |
|                    | Tiub Visking<br><i>Visking tube</i>                                                                                                                                                                                                                                                                                         | Kapilari darah<br><i>Blood capillary</i>                                                   |                |
| (f)                | <u>Ramalan / Prediction</u><br>P1 Kandungan dalam tiub Visking mula-mulanya menjadi biru tua tetapi kemudiannya menjadi tidak berwarna semula<br><i>The contents in the Visking tube is initially dark blue but then becomes colourless again</i>                                                                           |                                                                                            | 1              |
|                    | <u>Penerangan / Explanation</u><br>P2 Warna di dalam tiub Visking berubah kepada biru tua kerana molekul iodin telah merentasi tiub Visking dan bertindak balas dengan kanji.<br><i>The colour in Visking tube changes to dark blue because iodine molecules diffuse across the Visking tube and react with the starch.</i> |                                                                                            | 1              |
|                    | P3 Kemudiannya menjadi tidak berwarna semula kerana amilase dalam air liur telah mencernakan kanji kepada maltosa.<br><i>It then become colourless again because amylase in the saliva has digested the starch into maltose.</i>                                                                                            |                                                                                            | 1              |
|                    |                                                                                                                                                                                                                                                                                                                             |                                                                                            |                |

## SET 2

| Soalan<br>Question |         | Jawapan<br>Answer                                                                                                                                                                                                                                                                                                                                                              | Markah<br>Mark |
|--------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 1.                 | (a)     | Kehadiran amilase // kehadiran larutan amilase dan air suling<br><i>Presence of amylase // presence of amylase solution and distilled water</i>                                                                                                                                                                                                                                | 1              |
|                    | (b) (i) | Isi padu / peratus ampaian kanji // Suhu kukus air // Masa eksperimen<br><i>Volume / percentage of starch suspension // Water bath temperature // Time of experiment</i>                                                                                                                                                                                                       | 1              |
|                    | (ii)    | Tetapkan isi padu ampaian kanji iaitu 1 ml // Tetapkan peratus ampaian kanji iaitu 1% // Tetapkan suhu kukus air iaitu 37°C // Tetapkan masa eksperimen iaitu 10 minit<br><i>Fix the volume of starch suspension at 1 ml // Fix the percentage of starch suspension at 1% // Fix the water bath temperature at 37°C // Fix the time of experiment suspension at 10 minutes</i> | 1              |



| (c)                            | Kadar pencernaan kanji lebih tinggi dengan kehadiran amilase berbanding tanpa kehadiran amilase<br><i>The rate of starch digestion is higher with the presence of amylase compared with the absence of amylase</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2                                                              |                              |                                   |   |                                                                                            |                                                                |   |                                                                                |                                                                |             |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------|-----------------------------------|---|--------------------------------------------------------------------------------------------|----------------------------------------------------------------|---|--------------------------------------------------------------------------------|----------------------------------------------------------------|-------------|
| (d)                            | <table border="1"> <thead> <tr> <th>Tabung uji<br/><i>Test tube</i></th><th>Kandungan<br/><i>Contents</i></th><th>Ujian iodin<br/><i>Iodine test</i></th></tr> </thead> <tbody> <tr> <td>X</td><td>Ampaian kanji 1% + larutan amilase 1%<br/><i>1% starch suspension + 1% amylase solution</i></td><td>Kekal warna perang kekuningan<br/><i>Remain brownish yellow</i></td></tr> <tr> <td>Y</td><td>Ampaian kanji 1% + air suling<br/><i>1% starch suspension + distilled water</i></td><td>Warna biru tua terhasil<br/><i>Dark blue colour is produced</i></td></tr> </tbody> </table> <ul style="list-style-type: none"> <li>Semua tajuk yang betul<br/><i>All titles correct</i></li> <li>Keputusan ujian iodin untuk tabung uji X yang betul<br/><i>Correct iodine test result for test tube X</i></li> <li>Keputusan ujian iodin untuk tabung uji Y yang betul<br/><i>Correct iodine test result for test tube Y</i></li> </ul> | Tabung uji<br><i>Test tube</i>                                 | Kandungan<br><i>Contents</i> | Ujian iodin<br><i>Iodine test</i> | X | Ampaian kanji 1% + larutan amilase 1%<br><i>1% starch suspension + 1% amylase solution</i> | Kekal warna perang kekuningan<br><i>Remain brownish yellow</i> | Y | Ampaian kanji 1% + air suling<br><i>1% starch suspension + distilled water</i> | Warna biru tua terhasil<br><i>Dark blue colour is produced</i> | 1<br>1<br>1 |
| Tabung uji<br><i>Test tube</i> | Kandungan<br><i>Contents</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Ujian iodin<br><i>Iodine test</i>                              |                              |                                   |   |                                                                                            |                                                                |   |                                                                                |                                                                |             |
| X                              | Ampaian kanji 1% + larutan amilase 1%<br><i>1% starch suspension + 1% amylase solution</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Kekal warna perang kekuningan<br><i>Remain brownish yellow</i> |                              |                                   |   |                                                                                            |                                                                |   |                                                                                |                                                                |             |
| Y                              | Ampaian kanji 1% + air suling<br><i>1% starch suspension + distilled water</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Warna biru tua terhasil<br><i>Dark blue colour is produced</i> |                              |                                   |   |                                                                                            |                                                                |   |                                                                                |                                                                |             |
| (e)                            | X: Pencernaan kanji berlaku // Campuran tidak mengandungi kanji<br><i>Starch digestion occurred // Mixture does not contain starch</i><br>Y: Pencernaan kanji tidak berlaku // Campuran masih mengandungi kanji<br><i>Starch digestion does not occur // Mixture still contains starch</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1<br>1                                                         |                              |                                   |   |                                                                                            |                                                                |   |                                                                                |                                                                |             |
| (f)                            | P1 Campuran kekal berwarna perang kekuningan<br><i>The mixture remains brownish yellow colour</i><br>P2 Amilase telah menghidrolisiskan semua kanji kepada maltosa<br><i>Amylase has hydrolysed all starch into maltose</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1<br>1                                                         |                              |                                   |   |                                                                                            |                                                                |   |                                                                                |                                                                |             |
| (g) (i)                        | Warna biru tua terhasil<br><i>Dark blue colour is produced</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1                                                              |                              |                                   |   |                                                                                            |                                                                |   |                                                                                |                                                                |             |
| (ii)                           | P1 Semua amilase ternyahasli<br><i>All amylase has been denatured</i><br>P2 Kanji tidak dapat dihidrolisiskan kepada maltosa<br><i>Starch cannot be hydrolysed into maltose</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1<br>1                                                         |                              |                                   |   |                                                                                            |                                                                |   |                                                                                |                                                                |             |