

BAHAGIAN A

Jawab semua soalan.
Answer all questions.

5.1 Sifat Fizik Air Physical Characteristics of Water

1. Berikut menunjukkan ciri-ciri larutan Q.
The following shows the characteristics of solution Q.

- Takat didih/ Boiling point = 100°C
- Takat beku/ Freezing point = 0°C
- Tidak berwarna/ No colour
- Ketumpatan/ Density = 1 g cm^{-3}

Apakah larutan Q?
What is solution Q?

- A Cuka
Vinegar
- B Air kapur
Limewater
- C Kicap
Soy sauce
- D Air suling
Distilled water

2. Rajah 1 menunjukkan satu molekul air.
Diagram 1 shows a water molecule.



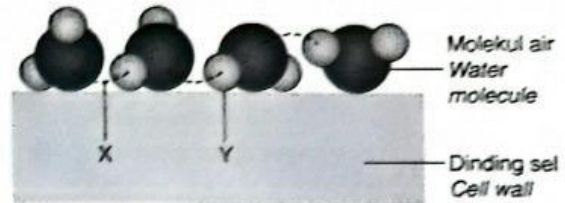
Rajah 1 / Diagram 1

Air merupakan suatu

Water is a/an

- A sebatian
compound
- B campuran
mixture
- C proton
proton
- D atom
atom

3. Rajah 2 menunjukkan molekul air yang melalui dinding sel tumbuhan.
Diagram 2 shows water molecules moving through the cell wall of a plant.



Rajah 2 / Diagram 2

Apakah X dan Y?
What is X and Y?

	X	Y
A	Daya lekatan antara molekul air Cohesive force between water molecules	Daya lekatan antara molekul air dan dinding sel Adhesive force between water molecules and cell wall
B	Daya lekatan antara molekul air dan dinding sel Adhesive force between water molecules and cell wall	Daya lekatan antara molekul air Cohesive force between water molecules
C	Daya lekatan antara molekul hidrogen dan oksigen Adhesive force between hydrogen molecules and oxygen molecules	Daya lekatan antara molekul air dan dinding sel Cohesive force between water molecules and cell wall
D	Daya lekatan antara molekul air dan dinding sel Cohesive force between water molecules and cell wall	Daya lekatan antara molekul hidrogen dan oksigen Adhesive force between hydrogen molecules and oxygen molecules

4. Antara berikut, yang manakah benar mengenai kesan bendasing terhadap ciri-ciri fizikal air?
Which of the following is true about the effect of impurities on the physical characteristics of water?

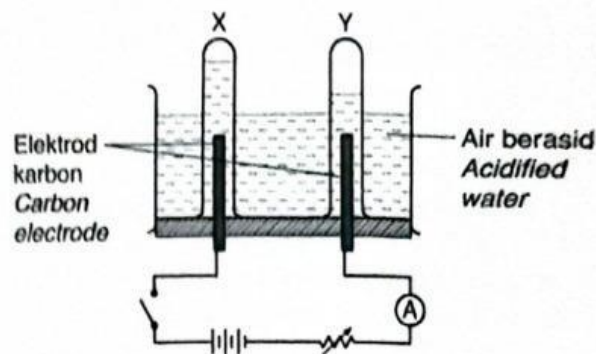
- I Takat beku menaik
Freezing point increases
- II Takat didih menurun
Boiling point decreases
- III Ketumpatan meningkat
Density increases
- IV Rasa, bau dan warna berubah
Flavour, odour and colour change

- A I dan II
I and II
- B III dan IV
III and IV
- C II dan III
II and III
- D I dan IV
I and IV

5. Apakah maksud elektrolisis air?
What is meant by water electrolysis?

- A Proses penguraian campuran air kepada molekul hidrogen dan oksigen dengan menggunakan arus elektrik
The process of decomposition of water mixture into molecules of hydrogen and oxygen by using electric current
- B Proses penguraian molekul air kepada atom hidrogen dan oksigen dengan menggunakan arus elektrik
The process of decomposition of water molecules into atoms of hydrogen and oxygen by using electric current
- C Proses pembahagian atom air kepada proton hidrogen dan oksigen dengan menggunakan arus elektrik
The process of division of atom of water into protons of hydrogen and oxygen by using electric current
- D Proses pembelahan molekul air kepada atom hidrogen dan oksigen dengan menggunakan sinaran radioaktif
The process of molecular fission of water into atoms of hydrogen and oxygen by using radioactive radiation

6. Rajah 3 menunjukkan proses elektrolisis.
Diagram 3 shows the process of electrolysis.



Rajah 3 / Diagram 3

- Apakah ciri-ciri gas yang terhasil di X dan Y?
What are the characteristics of the gas produced in X and Y?

	X	Y
A	Mengeruhkan air kapur Turns limewater cloudy	Menukarkan kertas litmus biru ke merah Turns blue litmus paper to red
B	Menukarkan kertas litmus biru ke merah Turns blue litmus paper to red	Mengeruhkan air kapur Turns limewater cloudy
C	Menyalakan kayu uji berbara Ignites a glowing wooden splinter	Menghasilkan bunyi 'pop' apabila diuji dengan kayu uji bernyala Produces 'pop' sound when tested with a burning wooden splinter
D	Mengeruhkan air kapur Turns limewater cloudy	Menyalakan kayu uji berbara Ignites a glowing wooden splinter

7. Pernyataan yang manakah tidak benar mengenai kadar penyejatan air?
Which statement is not true on evaporation rate of water?

- A Suhu persekitaran tinggi, kadar penyejatan tinggi
High environmental temperature, high evaporation rate
- B Pergerakan udara laju, kadar penyejatan tinggi
Fast air movement, high evaporation rate
- C Luas permukaan air kecil, kadar penyejatan rendah
Small water surface area, low evaporation rate
- D Kelembapan udara tinggi, kadar penyejatan tinggi
High air humidity, high evaporation rate

5.2 Larutan dan Kadar Keterlarutan Solution and the Rate of Solubility

8. Antara berikut, yang manakah betul menggambarkan tiga jenis larutan?
Which of the following is correct to show the three types of solution?

	Larutan tepu Saturated solution	Larutan cair Dilute solution	Larutan pekat Concentrated solution
A			
B			
C			
D			

9. Apakah jenis ubat yang perlu digoncang sebelum diminum supaya bahan aktif yang mendak dapat tersebar dengan sekata?
What type of medicines needs to be shaken before being consumed so that the active ingredient deposited at the bottom of the bottle is spread evenly?

- A koloid
colloid
- B campuran
mixture
- C ampaian
suspension
- D larutan
solution

10. Pernyataan yang manakah tidak benar?
Which statement is not true?

- A Susu ialah sejenis koloid
Milk is a colloid
- B Jus oren ialah sejenis larutan
Orange juice is a solution
- C Air sungai ialah sejenis ampaian
River water is a type of suspension
- D 100 plus ialah sejenis larutan
100 plus is a solution

11. Dalam situasi yang manakah kadar keterlarutan gula paling lambat?
In which situation the rate of solubility of sugar is the slowest?

- A
- B
- C
- D

5.3 Pembersihan dan Pembekalan Air Water Purification and Water Supply

12. Berikut menunjukkan fungsi bahan R, S, T dan U dalam loji rawatan air.

The following shows the functions of substances R, S, T and U in the water treatment plant.

- R** Mengurangkan keasidan air
Reduces the acidity of water
- S** Menghalang pereputan gigi
Prevents tooth decay
- T** Mengumpulkan zarah-zarah lumpur
Clumps the mud particles
- U** Memusnahkan mikroorganisma
Kills microorganisms

Apakah R, S, T dan U?

What is R, S, T and U?

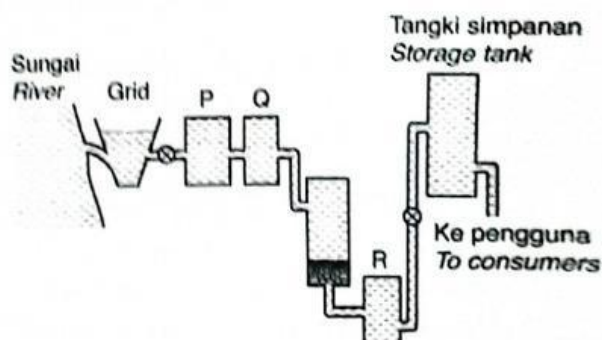
	R	S	T	U
A	Alum Alum	Kapur mati Slaked lime	Klorin Chlorine	Natrium fluorida Sodium fluoride
B	Kapur mati Slaked lime	Natrium fluorida Sodium fluoride	Alum Alum	Klorin Chlorine
C	Kapur mati Slaked lime	Klorin Chlorine	Natrium fluorida Sodium fluoride	Alum Alum
D	Alum Alum	Natrium fluorida Sodium fluoride	Klorin Chlorine	Kapur mati Slaked lime

13. Proses yang manakah paling sesuai dilakukan untuk membunuh bakteria dalam air minuman?

Which process is the most suitable to kill bacteria in drinking water?

- A** Pendidihan
Boiling
- B** Penyulingan
Distillation
- C** Penurasan
Filtration
- D** Penyejatan
Evaporation

14. Rajah 4 menunjukkan proses pembersihan air.
Diagram 4 shows the water purification process.



Rajah 4 / Diagram 4

Namakan proses P, Q dan R?

Name the process P, Q and R?

	P	Q	R
A	Pengklorinan dan pemfluoridaan Chlorination and fluoridation	Penggumpalan Coagulation	Penurasan Filtration
B	Penapisan Filtration	Pengoksidaan Oxidation	Penurasan Filtration
C	Penggumpalan Coagulation	Pengklorinan dan pemfluoridaan Chlorination and fluoridation	Pendidihan Boiling
D	Penggumpalan Coagulation	Pengenapan Sedimentation	Pengklorinan dan pemfluoridaan Chlorination and fluoridation