Practise Now 15

Similar Questions

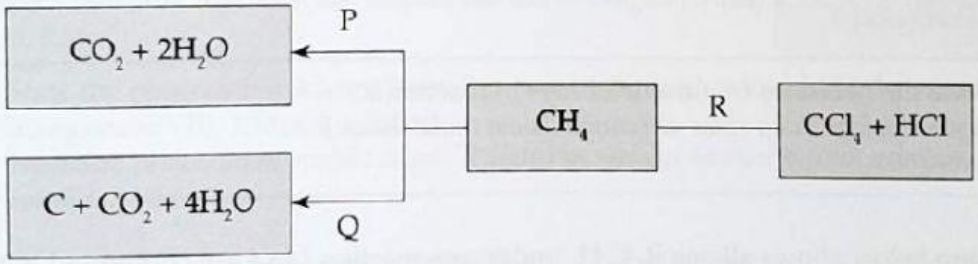
Exercise 2.3: [Question 5(f)]

Complete the table below regarding the production of ester.
Lengkapkan jadual di bawah mengenai penghasilan ester.

Reactants *Bahan tindak balas*		**Name of ester** *Nama ester*	**Molecular formula** *Formula molekul*
Methanol *Metanol*	Methanoic acid *Asid metanoik*		
Ethanol *Etanol*	Ethanoic acid *Asid etanoik*		
Propanol *Propanol*	Propanoic acid *Asid propanoik*		

Exercise 2.3

1 Study the following diagram regarding the chemical properties of methane, CH_4.
Kaji rajah mengenai sifat kimia metana, CH_4 yang berikut.



(a) Identify the type of reaction represented by P, Q, and R.
Kenal pasti jenis tindak balas yang diwakili oleh P, Q dan R.

P: _____

Q: _____

R: _____

(b) Write the balanced chemical equations for the reaction that occurs in P and Q.
Tuliskan persamaan kimia yang seimbang bagi tindak balas yang berlaku di P dan Q.

P: _____

Q: _____

(c) Describe the reaction that occurs in Q.
Huraikan tindak balas yang berlaku di Q.

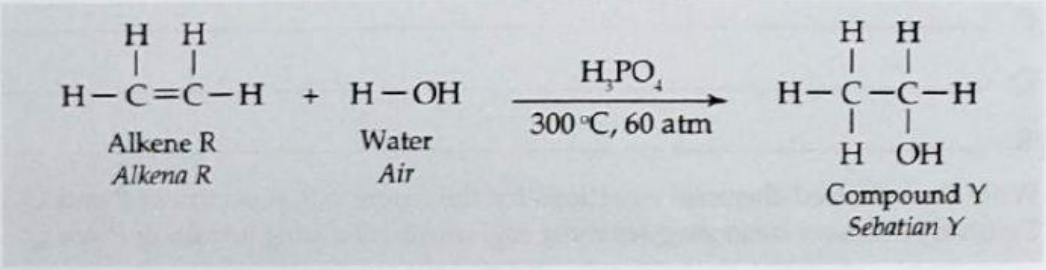
(d) What are the products formed during reaction P if methane is replaced by propane?
Apakah hasil tindak balas yang terbentuk semasa tindak balas P jika metana digantikan dengan propana?

(e) Reaction R occurs in four stages. Write the chemical equation that occurs in every stage.
Tindak balas R berlaku dalam empat peringkat. Tuliskan persamaan kimia yang berlaku dalam setiap peringkat tersebut.

Stage 1 ***Peringkat 1***	(i)
Stage 2 ***Peringkat 2***	(ii)
Stage 3 ***Peringkat 3***	(iii)
Stage 4 ***Peringkat 4***	(iv)

(f) State the necessity of ultraviolet rays in reaction R.
Nyatakan keperluan sinar ultraungu dalam tindak balas R.

2 Diagram below shows alkene R, C_2H_4 undergoes reaction I to form compound Y. Compound Y undergoes reaction II to form alkene R.
Rajah di bawah menunjukkan alkena R, C_2H_4 menjalani tindak balas I untuk membentuk sebatian Y. Sebatian Y menjalani tindak balas II untuk membentuk alkena R.



(a) State the name for alkene R.
Nyatakan nama bagi alkena R.

(b) State the name and molecular formula of compound Y.
Nyatakan nama dan formula molekul bagi sebatian Y.

(c) Based on diagram, describe reaction I.
Berdasarkan rajah, huraikan mengenai tindak balas I.

(d) Write a balanced chemical equation for the conversion of alkene R to compound Y in reaction I.
Tuliskan persamaan kimia seimbang bagi penukaran alkena R kepada sebatian Y dalam tindak balas I.

(e) Alkene R is used to study the reaction of alkene with acidified potassium manganate(VII), $KMnO_4$ solution.
Alkena R digunakan bagi mengkaji tindak balas alkena dengan larutan kalium manganat(VII) berasid, $KMnO_4$.

(i) State the observation when alkene R is passed through into acidified potassium manganate(VII), $KMnO_4$ solution.
Nyatakan pemerhatian apabila alkena R dialirkan melalui larutan kalium manganat(VII) berasid, $KMnO_4$.

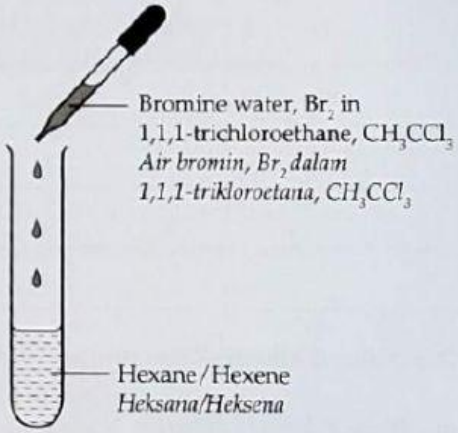
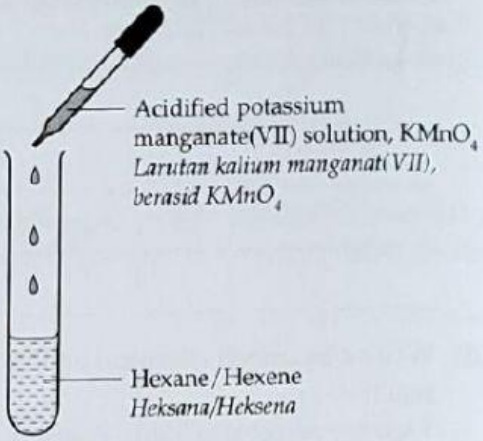
(ii) Write the balanced chemical equation for the reaction in 2(e)(i).
Tuliskan persamaan kimia yang seimbang bagi tindak balas dalam 2(e)(i).

(f) Describe another two chemical properties of alkene R.
Huraikan dua sifat kimia lain bagi alkena R.

(i)

(ii)

3 Haziq carried out an experiment to compare alkanes and alkenes. Diagram below shows two set-ups of apparatus of the experiment.
Haziq telah menjalankan suatu eksperimen untuk membandingkan alkana dengan alkena. Rajah di bawah menunjukkan dua susunan radas bagi eksperimen tersebut.

Experiment A *Eksperimen A*	**Experiment B** *Eksperimen B*
	

(a) State the observations in experiments A and B.
Nyatakan pemerhatian bagi eksperimen A dan eksperimen B.

Experiment *Eksperimen*		**Observation** *Pemerhatian*
A	Hexane, C_6H_{14} *Heksana, C_6H_{14}*	(i)
	Heksene, C_6H_{12} *Heksena, C_6H_{12}*	(ii)
B	Hexane, C_6H_{14} *Heksana, C_6H_{14}*	(iii)
	Heksene, C_6H_{12} *Heksena, C_6H_{12}*	(iv)

(b) Based on your observation in 3(a), which compound is more reactive? Explain your answer.
Berdasarkan pemerhatian anda di 3(a), sebatian yang manakah lebih reaktif? Terangkan jawapan anda.

_____

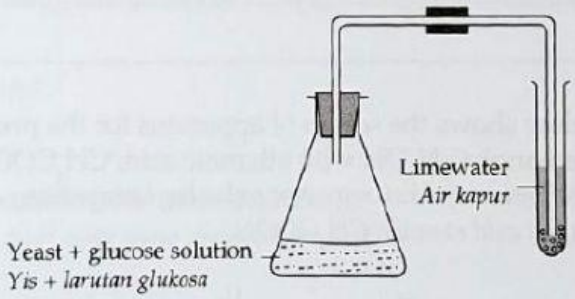
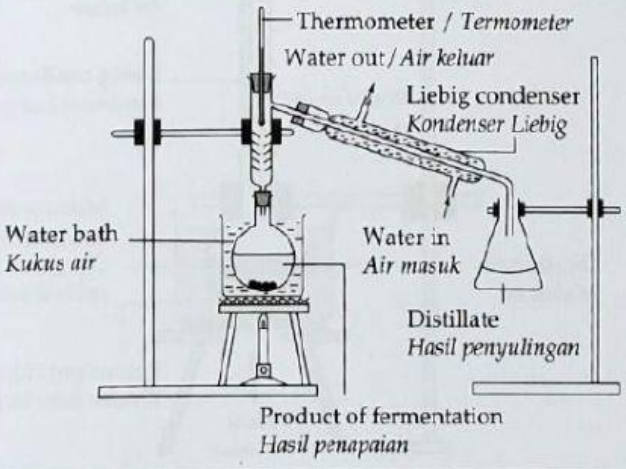
_____

(c) State the difference in observation when hexane, C_6H_{14} and hexene, C_6H_{12} are burnt in excess oxygen.
Nyatakan perbezaan pemerhatian apabila kedua-dua heksana, C_6H_{14} dan heksene, C_6H_{12} dibakar dalam oksigen berlebihan.

(d) Explain your answer in 3(c).
Terangkan jawapan anda di 3(c).

(e) State one similarity between hexene and hexane.
Nyatakan satu persamaan antara heksena dengan heksana.

4 Ethanol, C_2H_5OH can be prepared in the laboratory through fermentation followed by distillation. Diagram below shows the set-up of apparatus for the preparation of ethanol.
Etanol, C_2H_5OH boleh disediakan dalam makmal melalui penapaian yang diikuti dengan penyulingan. Rajah di bawah menunjukkan susunan radas bagi penyediaan etanol.

Fermentation of glucose ***Penapaian glukosa***	
Distillation of alcohol ***Penyulingan alkohol***	

(a) What is the function of yeast in the fermentation of glucose?
Apakah fungsi yis dalam penapaian glukosa?

(b) What happens to the limewater during fermentation of glucose?
Apakah yang berlaku pada air kapur semasa penapaian glukosa?

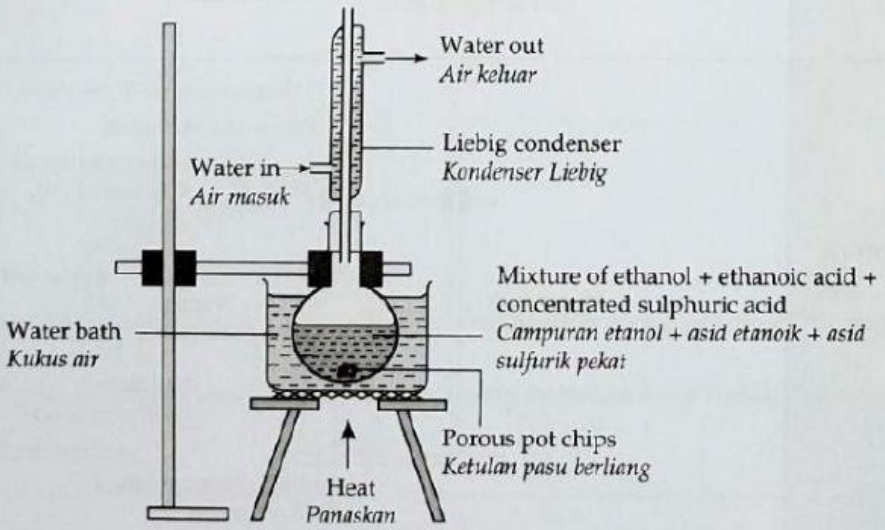
(c) Give inference based on your observation in 4(b).
Berikan inferens berdasarkan pemerhatian anda di 4(b).

(d) Write the chemical equation for the fermentation of glucose, $C_6H_{12}O_6$.
Tulis persamaan kimia untuk penapaian glukosa, $C_6H_{12}O_6$.

(e) Name the product collected in fractional distillation at 78°C.
Namakan hasil yang dikumpulkan dalam penyulingan berperingkat pada suhu 78°C.

(f) Describe another method that can be used to prepare ethanol.
Huraikan kaedah lain yang boleh digunakan untuk menyediakan etanol.

5 Diagram below shows the set-up of apparatus for the preparation of ethyl ethanoate from the reaction of ethanol, C_2H_5OH with ethanoic acid, CH_3COOH.
Rajah di bawah menunjukkan susunan radas bagi penyediaan etil etanoat daripada tindak balas etanol, C_2H_5OH dengan asid etanoik, CH_3COOH.



(a) Name the reaction that took place between ethanol, C_2H_5OH and ethanoic acid, CH_3COOH.
Namakan tindak balas yang berlaku antara etanol, C_2H_5OH dengan asid etanoik, CH_3COOH.

_____

(b) Write the chemical equation for the reaction named in 5(a).
Tuliskan persamaan kimia bagi tindak balas yang dinamakan di 5(a).

_____

(c) Write the molecular formula of ethyl ethanoate.
Tuliskan formula molekul bagi etil etanoat.

_____

(d) The mixture is heated using a water bath. Explain why.
Campuran tersebut dipanaskan menggunakan kukus air. Terangkan mengapa.

_____

_____

_____

(e) What is the function of concentrated sulphuric acid, H_2SO_4?
Apakah fungsi asid sulfurik pekat, H_2SO_4?

_____

_____

(f) The experiment is repeated by replacing ethanol, C_2H_5OH with propanol, C_2H_5OH.
Eksperimen itu diulang dengan menggantikan etanol, C_2H_5OH dengan propanol, C_2H_5OH.

(i) Name the ester formed.
Namakan ester yang terbentuk.

_____

(ii) Draw the structural formula of ester named in 5(f)(i).
Lukiskan formula struktur bagi ester yang dinamakan di 5(f)(i).