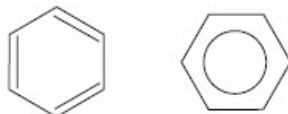


Arenes - Questions by Topic

Q1.

Benzene can be represented by either a cyclic triene or with a delocalised ring of electrons.



*(a) Discuss the evidence, including one example from each of spectroscopy, thermochemistry and the type of reaction normally undergone, that supports the view that the better representation of benzene is with a delocalised ring of electrons.

(6)

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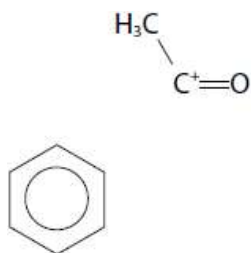
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(b) Benzene can be converted into phenylethanone by a Friedel-Crafts acylation.

(i) Complete the diagram, including curly arrows, to show the mechanism for this reaction.

(4)



(ii) Write an equation to show how the species, CH_3CO^+ , could be generated.

(1)

(c) Explain why phenol reacts with bromine more readily than benzene reacts with bromine.

(2)

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(d) Benzene can be converted into nitrobenzene.

(i) Complete the flow diagram showing this conversion.

(2)



(ii) Calculate the percentage yield if 0.642 g of nitrobenzene was made from 0.936 g of benzene.

Give your answer to an appropriate number of significant figures.

(3)

(Total for question = 18 marks)