

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Q1.

This question is about poly(chloroethene), commonly known as PVC.

- (a) Give an equation, showing structural formulas, for the conversion of chloroethene into poly(chloroethene).

(3)

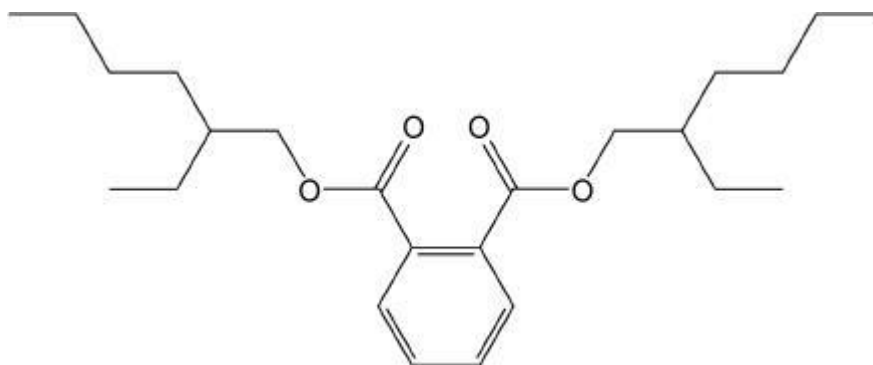
- (b) State what you would observe if bromine water was added to poly(chloroethene). Explain this observation.

Observation _____

Explanation _____

(2)

- (c) Plasticisers are often added during the manufacture of PVC. The structure of the plasticiser DEHP is shown.



Deduce the molecular formula of DEHP and state why a plasticiser is added to PVC.

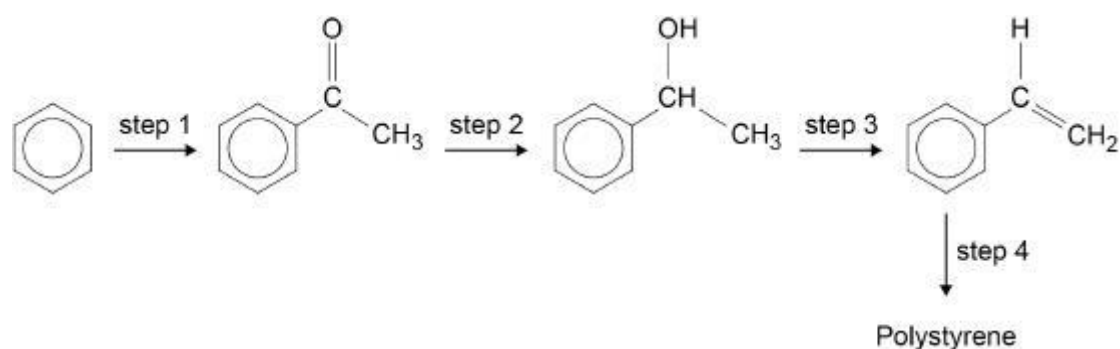
Molecular formula _____

Why a plasticiser is added _____

(2)
(Total 7 marks)

Q2.

Polystyrene can be made from benzene in the series of steps shown.



- (a) State the type of reaction in step 1.

Identify the reagent(s) and conditions needed for step 1.

Type of reaction _____

Reagent(s) _____

Conditions _____

(3)

- (b) State the name of the mechanism for the reaction in step 2.

Identify the inorganic reagent needed for step 2.

Name the organic product of step 2.

Name of mechanism _____

Inorganic reagent _____

Name of organic product _____

(3)

- (c) The organic product of step 2 is reacted with concentrated sulfuric acid in step 3.

Outline the mechanism for step 3.

(3)

- (d) Draw the repeating unit of polystyrene.

