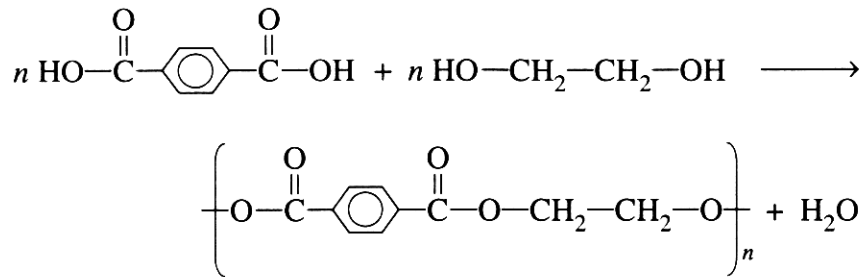


## Question 18 (6 marks)

(a) Name the type of polymerisation shown in the following reaction:

1



Condensation has occurred as water is produced.

(b) Assess current developments in the use of biopolymers.

5

Biopolymers are those polymers that are renewable and come from nature. These include substances such as cellulose for the initial production. Cellulose can be broken down into glucose which can then be broken down by bacteria into a form of ethane. This is very important as the supplies of ethane are diminishing due to the fact the main production at the moment is from oil which is a non-renewable resource. This is currently not a viable method of production as it is very costly and cannot be created on a large scale basis.

However, it is still being researched into ways that bacteria can be created in such a way as to create ethane solely from glucose. If the use of cellulose as a biopolymer is achieved it will mean that it is a renewable resource but the land areas required for the production of cellulose may not be viable in some areas.