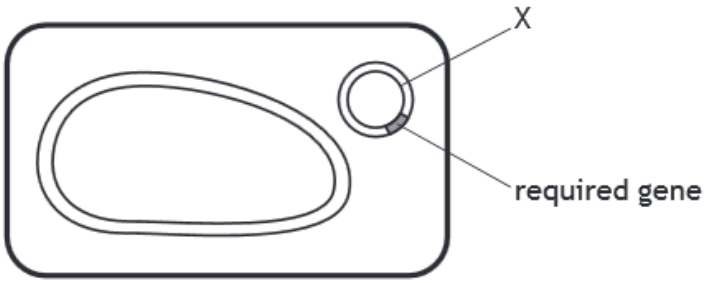
Genetic Engineering

3. The diagram below represents a genetically engineered bacterial cell.



The structure labelled X is a

A chromosome

B plasmid

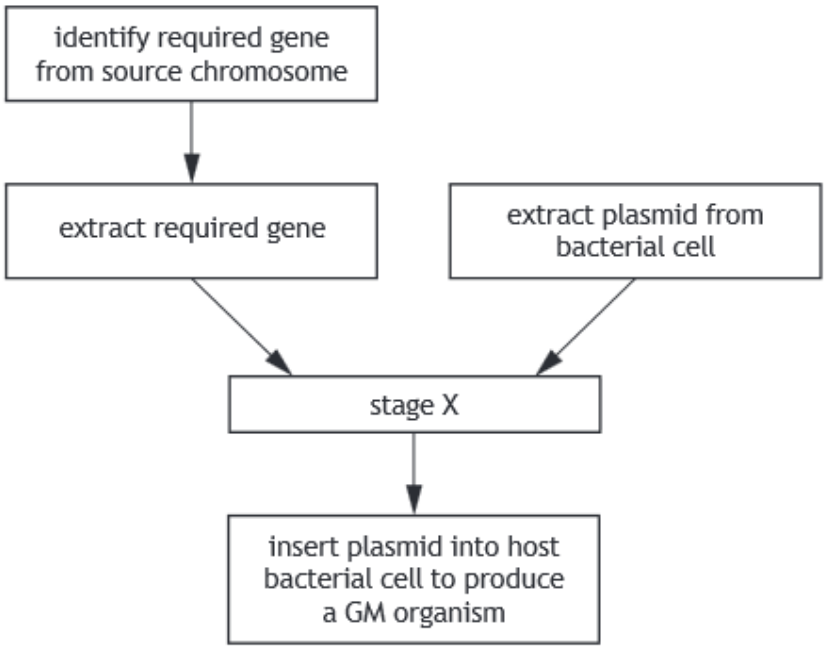
C ribosome

D nucleus.

3. Which row in the table identifies the order of stages involved in genetic engineering?

	Stage in Genetic Engineering			
	1st	2nd	3rd	4th
A	Required gene identified	Gene and plasmid extracted	Gene inserted into plasmid	Modified cells grown
B	Required gene identified	Gene inserted into plasmid	Gene and plasmid extracted	Modified cells grown
C	Gene inserted into plasmid	Required gene identified	Modified cells grown	Gene and plasmid extracted
D	Gene inserted into plasmid	Modified cells grown	Gene and plasmid extracted	Required gene identified

6. The flowchart represents some of the stages of genetic engineering.



A suitable description of stage X would be

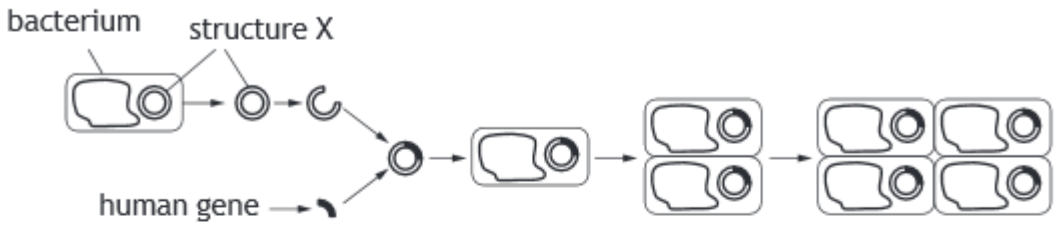
A insert bacterial plasmid into required gene

B insert bacterial plasmid into source chromosome

C insert required gene into host bacterial cell

D insert required gene into bacterial plasmid.

3. The diagram below represents part of the process of genetic engineering.



(a) (i) Structure X is removed from the bacterium and modified during this process.

Name structure X. **1**

_____

(ii) The bacteria have an initial concentration of 1000 cells/cm^3.

Each cell divides once every 30 minutes.

Calculate how long it will take for the concentration to become greater than 15 000 cells/cm^3. **1**

Space for calculation

_____ hours