Biotechnology and genetic modification – 2021 IGCSE 0610

1. Nov/2021/Paper_12/No.39

What is the useful product of anaerobic respiration in the manufacture of bread?

A carbon dioxide

B ethanol

C lactic acid

D oxygen

2. Nov/2021/Paper_13/No.39

Three statements about the bacteria that are used in biotechnology and genetic engineering are listed.

1 They can convert simple molecules into more complex ones.

2 They can only reproduce very slowly.

3 Their genetic material can be changed.

Which statements are correct?

A 1 and 2 **B** 2 only **C** 1 and 3 **D** 3 only

3. Nov/2021/Paper_21/No.37

Bacteria can be genetically engineered to produce human protein.

What happens during this process?

A The human plasmids are isolated using restriction enzymes.

B Ligase is used to create sticky ends in bacterial plasmids.

C Restriction enzymes are used to create sticky ends in human DNA.

D Human DNA is isolated using ligase.

4. Nov/2021/Paper_22/No.37

What is a characteristic of bacteria that makes them useful in genetic engineering?

A The genetic code of bacteria is different to plants and animals.

B Their nucleus contains DNA.

C Plasmids can be transferred between cells.

D They have large numbers of mitochondria.

5. Nov/2021/Paper_23/No.38

Reasons why bacteria might be used in biotechnology and genetic engineering are listed.

1 All bacteria are harmless organisms.

2 Bacteria contain plasmids.

3 Bacteria share the same genetic code as other organisms.

4 There is a lack of ethical concerns about using bacteria.

Which reasons make bacteria useful in biotechnology and genetic engineering?

A 1, 2 and 3 **B** 2, 3 and 4 **C** 1 and 4 **D** 2 and 3 only

6. Nov/2021/Paper_23/No.40

Bacteria can be genetically engineered to produce human proteins, such as human insulin.

Which enzyme is used to join the human gene and the bacterial plasmid together to create a recombinant plasmid?

A lipase

B recombinant enzyme

C DNA ligase

D restriction enzyme