



Name _____ Class _____ Date _____

1 A medical test indicates that a patient has a **defective protein**. This condition is most likely due to a **change in the directions coded** in the

- A number of hydrogen atoms in starch molecules
- B sequence of inorganic molecules
- C number of carbon atoms in sugar molecules
- D sequence of subunits in DNA

3 Many diabetics are now using **insulin** that was made by **certain bacteria**. The **ability of these bacteria to produce insulin** was most likely the result of

- A deleting many DNA segments from bacterial DNA
- B genetic mapping of bacterial DNA to activate the gene for insulin production
- C inserting a portion of human DNA into the

2 A **small amount of DNA** was taken from a fossil of a mammoth found frozen in glacial ice. Genetic technology can be used to produce a **large quantity of identical DNA** from this mammoth's DNA. In this technology, the **original DNA sample** is used to

- A stimulate differentiation in other mammoth cells
- B provide fragments to replace certain human body chemicals
- C act as a template for repeated replication
- D trigger mitosis to obtain new base sequences

4 In 1994, a **new tomato variety** that ripens slowly was developed by a laboratory technique that did **not** involve methods of natural reproduction. This new variety contains a section of a DNA molecule **not** found in the tomato from which it was originally developed. **Which technique** was most likely used to develop this new variety of tomato?

5



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7

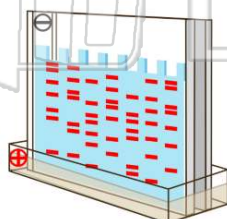
- A human insulin
- B antibodies against insulin
- C enzymes that digest insulin
- D a new type of insulin

most closely related?

- A Bear 1 and 2
- B Bear 1 and 3
- C Bear 2 and 3
- D Bear 1 and 3

9 **Gel electrophoresis** is used to separate DNA fragments on the basis of their

- A size
- B color
- C functions
- D chromosomes



10 **Strawberries can reproduce by means of runners**, which are stems that grow horizontally along the ground. At the region of the runner that touches the ground, a new plant develops. **The new plant is genetically identical to the parent because**

- A it was produced sexually
- B nuclei traveled to the new plant through the runner to fertilize it
- C it was produced asexually
- D there were no other strawberry plants in the area to provide fertilization





ANSWER KEY

A medical test indicates that a patient has a **defective protein**. This condition is most likely due to a **change in the directions coded** in the

- A number of hydrogen atoms in starch molecules
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(d)

A **small amount of DNA** was taken from a fossil of a mammoth found frozen in glacial ice. Genetic technology can be used to produce a **large quantity of identical DNA** from this mammoth's DNA. **In this technology, the original DNA sample is used to**

- A stimulate differentiation in other mammoth cells
- B provide fragments to replace certain human body chemicals
- C act as a template for repeated replication
- D trigger mitosis to obtain new base sequences

(C)

Many diabetics are now using **insulin** that was made by **certain bacteria**. **The ability of these bacteria to produce insulin** was most likely the result of

- A deleting many DNA segments from bacterial DNA
- B genetic mapping of bacterial DNA to activate the gene for insulin production
- C inserting a portion of human DNA into the ring-shaped DNA of bacteria
- D

(C)

In 1994, a **new tomato variety** that ripens slowly was developed by a laboratory technique that did **not** involve methods of natural reproduction. This new variety contains a section of a DNA molecule **not** found in the tomato from which it was originally developed. **Which technique was most likely used to develop this new variety of tomato?**

- A amniocentesis
- C genetic engineering

(C)



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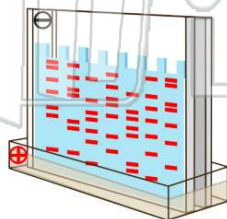
- A human insulin
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- A Bear 1 and 2
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- D Bear 1 and 3



Gel electrophoresis is used to separate DNA fragments on the basis of their

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(a)

Strawberries can reproduce by means of runners, which are stems that grow horizontally along the ground. At the region of the runner that touches the ground, a new plant develops. **The new plant is genetically identical to the parent because**

- A it was produced sexually
- B nuclei traveled to the new plant through the runner to fertilize it
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(C)