

1 Which of the following statements about gel electrophoresis is/are correct?

- (1) An electric field is used to drive the DNA fragments across a gel slab.
- (2) DNA fragments are separated into bands according to their shape.
- (3) DNA fragments move from the positive terminal towards the negative terminal.

- A (1) only
- B (3) only
- C (1) and (3) only
- D (2) and (3) only

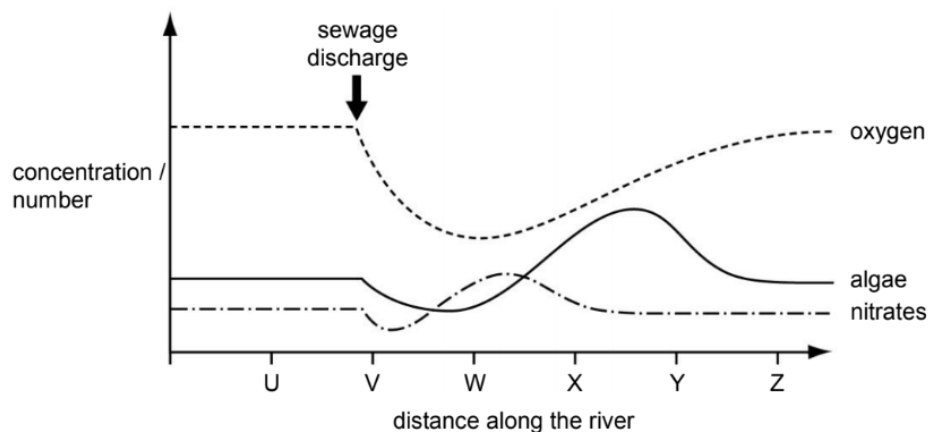
A

2 A person who has recovered from measles is unlikely to be attacked by measles again but a person may suffer from influenza several times in a month because

- A influenza viruses will not stimulate an immune response against them.
- B only B cells respond to influenza viruses but not T cells.
- C only T cells respond to influenza viruses but not B cells.
- D influenza viruses mutate much more rapidly than measles viruses.

D

Directions: The following two questions refer to the graph below, which shows the concentrations of nitrates and oxygen, and the number of algae in a river. Sewage containing organic waste is discharged into the river at location V.



3 The increase in the concentration of nitrates near V is due to the action of

- A nitrifying bacteria only.
- B denitrifying bacteria only.
- C decomposers and nitrifying bacteria.
- D decomposers and denitrifying bacteria.

C

- 4 The decrease in the number of algae from Y to Z is most probably due to
- (1) the decrease in the concentration of nitrates.
 - (2) the increase in oxygen concentration.
 - (3) the increase in organic waste.
- A** (1) only
B (3) only
C (2) and (3) only
D (1), (2) and (3)

A