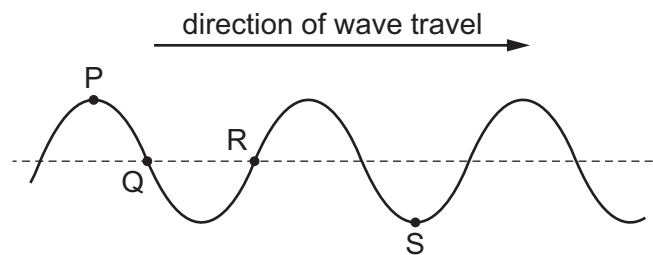


- 21** A wave travels on the surface of water. P, Q, R and S are four particles of water on the surface.

The diagram shows the positions of the particles at one instant. The direction of travel of the wave is from left to right.



Which two particles are about to move upwards?

- A** P and R      **B** P and S      **C** R and S      **D** Q and S
- 22** A loudspeaker emits sound of frequency  $f_s$ . The loudspeaker is attached to a car that moves with increasing speed directly towards a stationary observer.
- Which statement describes the frequency of the sound heard by the observer?
- A** a frequency greater than  $f_s$  and increasing  
**B** a frequency greater than  $f_s$  but decreasing  
**C** a frequency less than  $f_s$  and decreasing  
**D** a frequency less than  $f_s$  but increasing
- 23** Which statement about electromagnetic waves in a vacuum is correct?
- A** Amplitude is inversely proportional to velocity.  
**B** Frequency is inversely proportional to wavelength.  
**C** Intensity is proportional to amplitude.  
**D** Velocity is proportional to wavelength.