

Waves – 2019 June

1. 0625/11/M/J/19/No.21

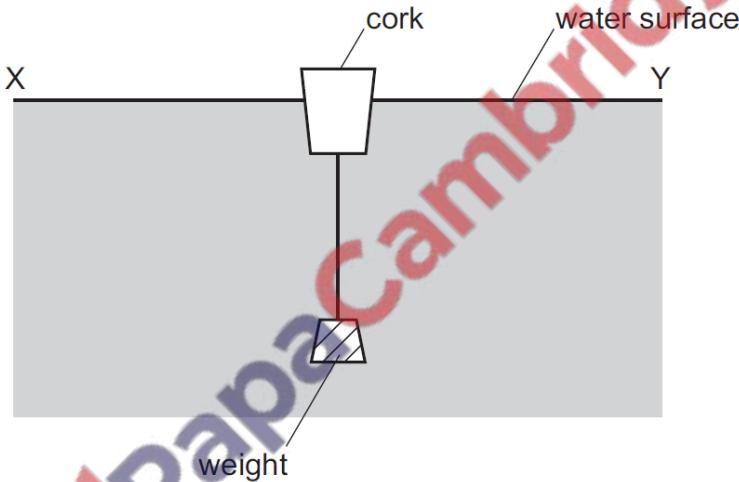
Ultrasound is used in a hospital to scan a patient. Ultrasound refracts at the boundary between muscle and bone because it travels at a greater speed in bone.

Which change takes place when the ultrasound travels from muscle into bone?

- A The frequency of the wave decreases.
- B The frequency of the wave increases.
- C The wavelength of the wave decreases.
- D The wavelength of the wave increases.

2. 0625/11\$12\$13/M/J/19/No.22

The diagram shows a cork with a weight attached so that the cork floats upright in water.



Transverse waves travel across the water from X to Y.

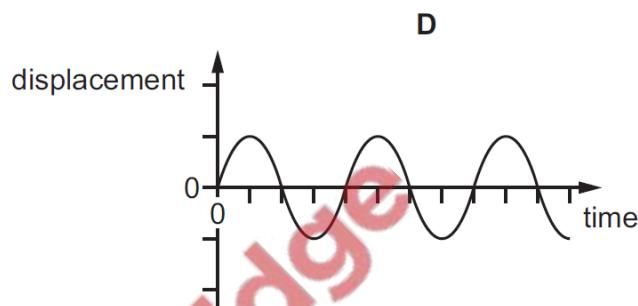
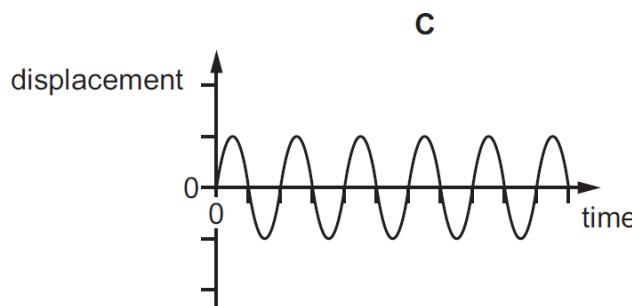
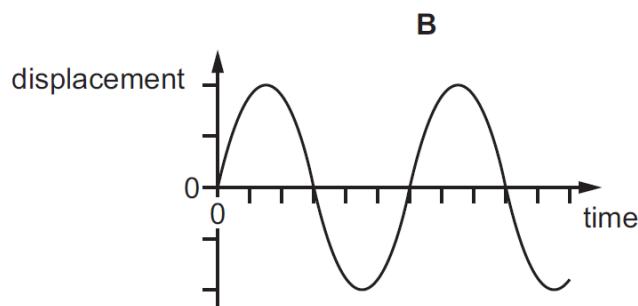
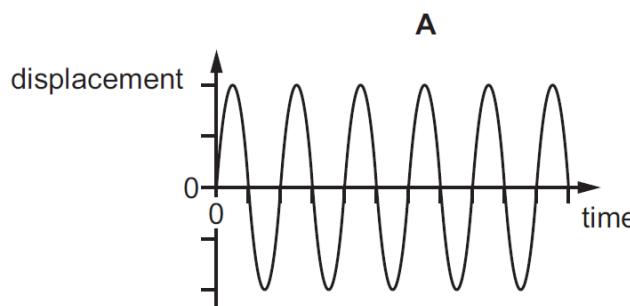
In which direction do the waves make the cork move?

- A $\rightarrow \leftarrow$ right and left
- B $\uparrow \downarrow$ up and down
- C \rightarrow only to the right
- D \leftarrow only to the left

3. 0625/12/M/J/19/No.21

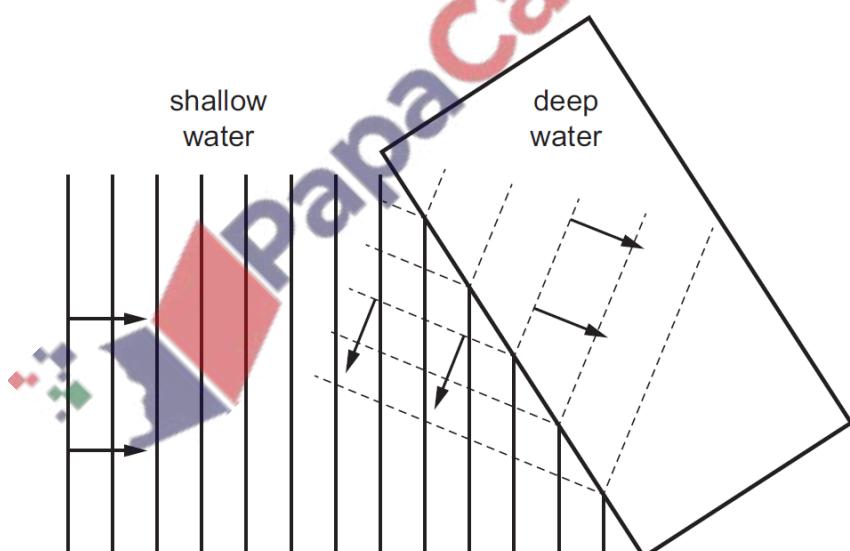
The diagrams show graphs of displacement against time for four waves. All the graphs are drawn to the same scale.

Which wave has the largest amplitude and the highest frequency?



4. 0625/13/M/J/19/No.21

A student draws a diagram to show two different properties of a water wave. The arrows show the wave directions.



Which two wave properties does the diagram show?

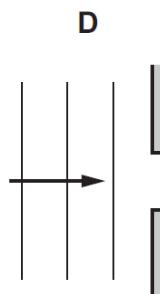
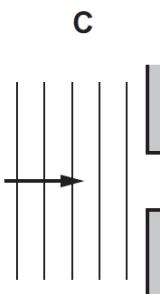
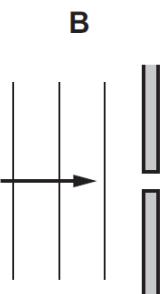
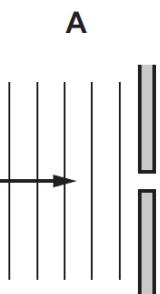
- A** refraction and diffraction
- B** reflection and dispersion
- C** reflection and diffraction
- D** reflection and refraction

5. 0625/21,22,23/M/J/19/No.20,19

When water waves pass through a gap they diffract.

The diagrams show wavefronts approaching a narrow gap.

In which diagram will the diffraction be least?



6. 0625/21/M/J/19/No.21

An object is placed 30 cm in front of a plane mirror.

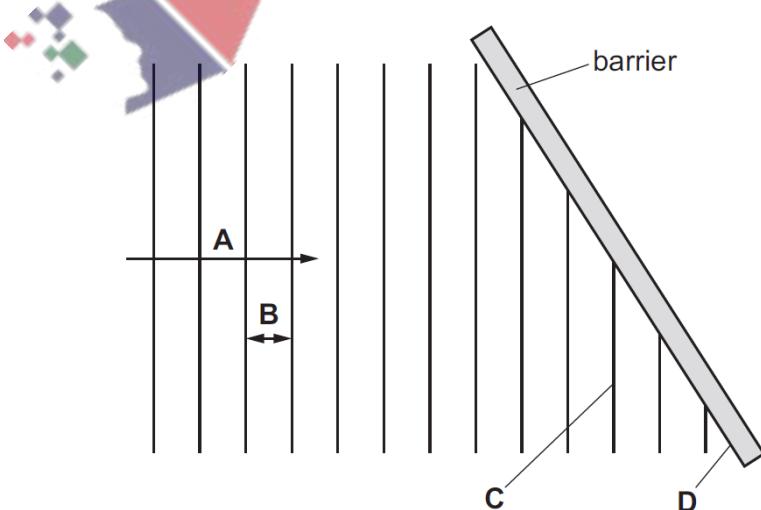
Which statement describes the image of the object?

- A** The image is the same size and 30 cm from the object.
- B** The image is the same size and 60 cm from the object.
- C** The image is smaller and 30 cm from the object.
- D** The image is smaller and 60 cm from the object.

7. 0625/12/F/M/19/No.20

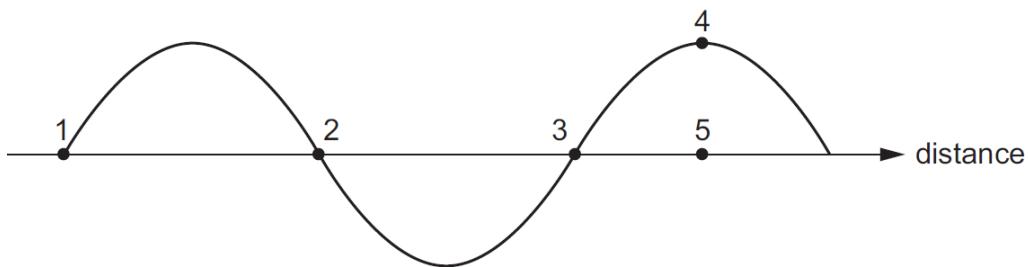
The diagram shows a wave before it reflects from a barrier.

Which labelled section of the diagram represents a wavefront?



8. 0625/12/F/M/19/No.21

The diagram shows a transverse wave.



Which distance is equal to one wavelength?

- A the distance between points 1 and 2
- B the distance between points 1 and 3
- C the distance between points 2 and 3
- D the distance between points 4 and 5

9. 0625/22/F/M/19/No.22

A vibrating object produces ripples on the surface of a liquid. The object completes 20 vibrations every second. The spacing of the ripples, from one crest to the next, is 3.0 cm.

What is the speed of the ripples?

- A 0.15 cm/s
- B 6.7 cm/s
- C 60 cm/s
- D 120 cm/s

