

**AS Level Physics A**  
**H156/01** Breadth in Physics

**Question Set 8**

1 (a)

In a ripple tank experiment, a dipper vibrates on the surface of water. Circular waves spread out in all directions from the dipper. The variation of displacement of the water with distance  $x$  from the dipper at one instant in time is shown in Fig. 25.1.

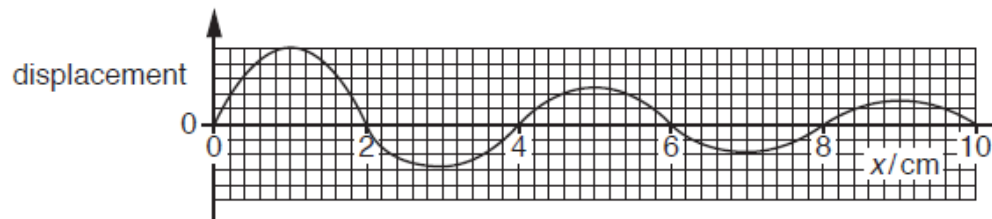


Fig. 25.1

(i) Determine the wavelength  $\lambda$  of the wave in cm.

$\lambda =$  \_\_\_\_\_ cm

[1]

(a) (ii) Explain why the **intensity** of the wave changes as the distance  $x$  increases

[2]

- (b) Fig. 25.2 shows an arrangement used to demonstrate the interference of transverse waves on the surface of water.

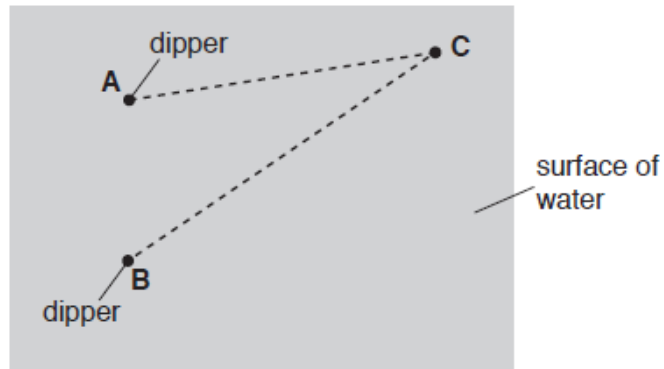


Fig. 25.2 (not to scale)

- (i) The dippers **A** and **B** oscillate in phase. Each dipper creates waves of wavelength 3.0 cm. **C** is a point on the surface of the water. The distance **AC** is 10.5 cm and the distance **BC** is 15.0 cm.

Explain what is meant by *interference*.

[1]

- (b) (ii) State and explain the type of interference occurring at **C**.

[2]

**Total Marks for Question Set 8: 6**

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