5 **(a)** **(i)** Define, for a wave,

For Examiner's Use

1. wavelength λ,

.....

.....[1]

2. frequency f.

.....

.....[1]

(ii) Use your definitions to deduce the relationship between λ, f and the speed v of the wave.

[1]

(b) Plane waves on the surface of water are represented by Fig. 5.1 at one particular instant of time.

For Examiner's Use

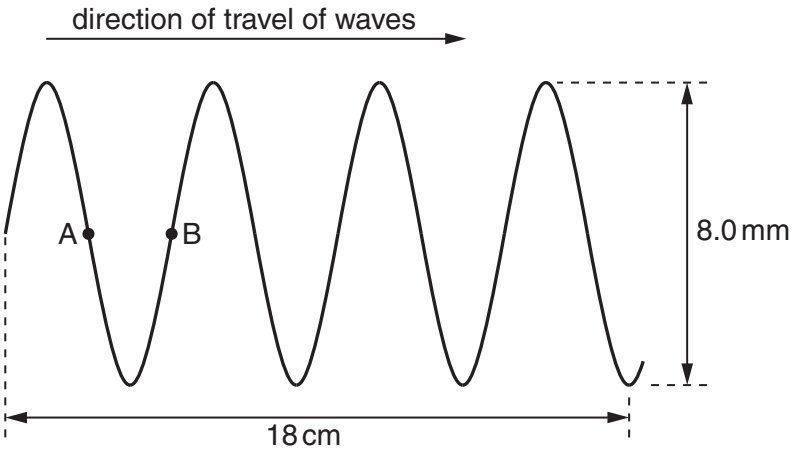

Fig. 5.1 (not to scale)

The waves have frequency 2.5 Hz.

Determine, for the waves,

(i) the amplitude,

amplitude = ... mm [1]

(ii) the speed,

speed = ... $m\,s^{-1}$ [2]

(iii) the phase difference between points A and B.

phase difference = ... unit ..... [1]

(c) The wave in **(b)** was produced in a ripple tank. Describe briefly, with the aid of a sketch diagram, how the wave may be observed.

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.....

.....

.....

[2]