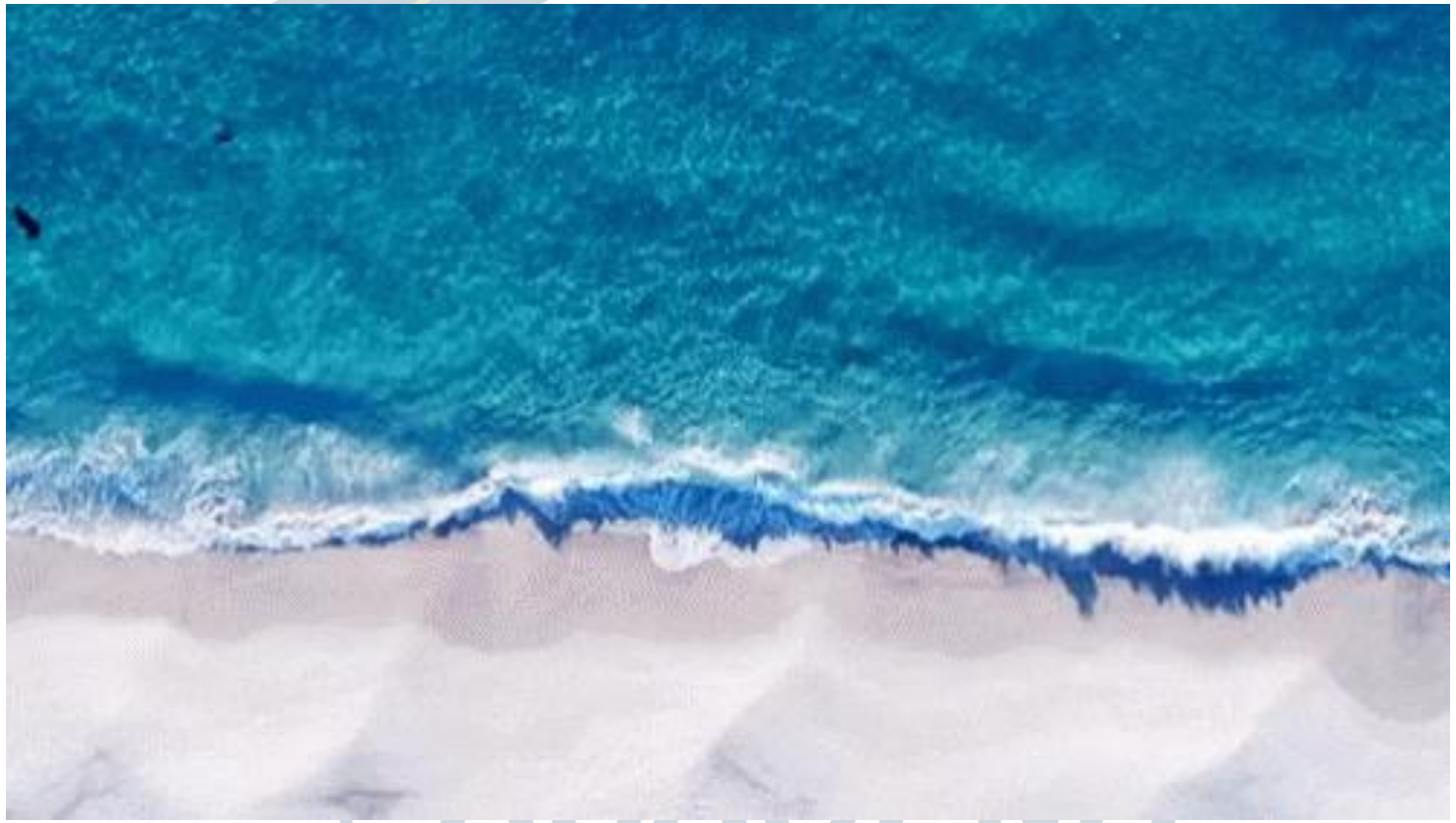
Physics - Grade 11 S

Unit One: Waves



Chapter 1: Waves

Prepared & presented by : Mr. Mohamad Seif


Quiz Time
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Quiz Waves Time: 20min

A string is connected to a wall as shown in the figure.

The other end is connected to a vibrator S, performing 20 vibrations per 2s.

Figure 2 represents a portion of the string taken at the instant t.

1)Specify the type (longitudinal or transverse) and the nature (mechanical or electromagnetic) of the produced wave.

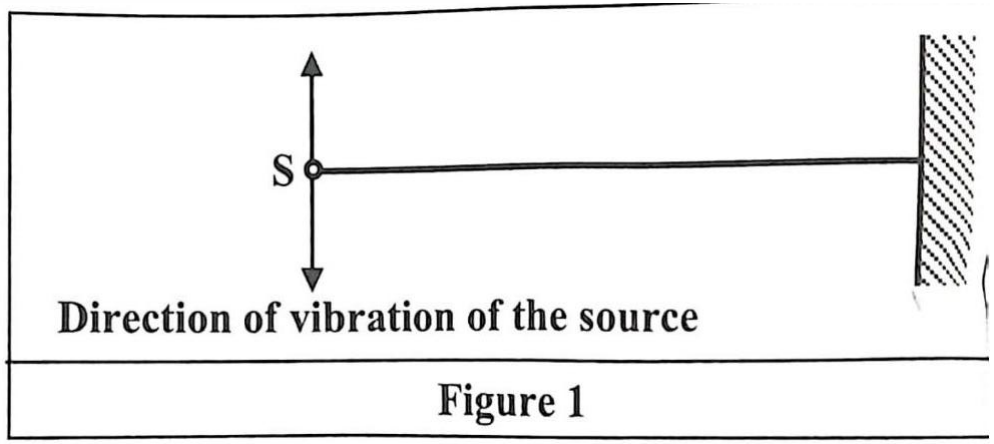


Figure 1

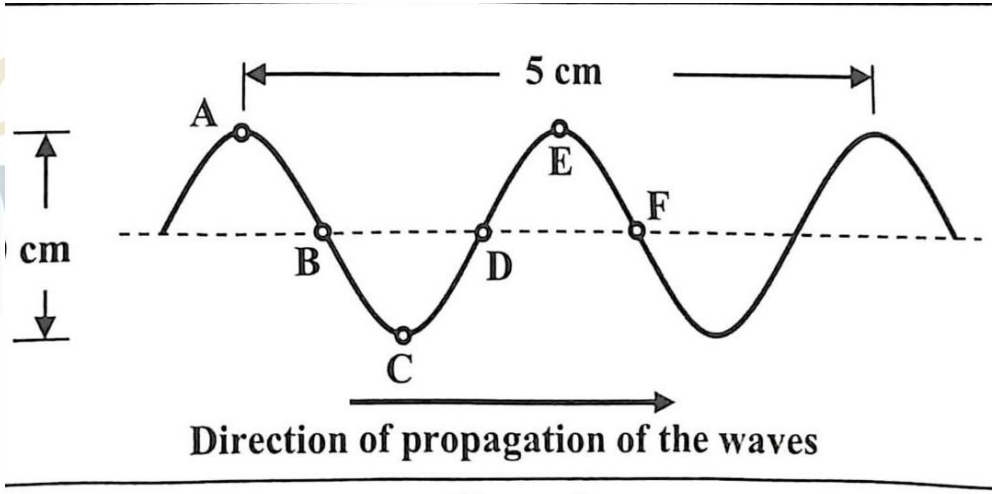


Figure 2

Quiz Waves Time: 20min

2)Referring to figure 2. Choose two points:

a) Vibrating in-phase.

b) Vibrating out of phase.

c) Vibrating neither in-phase nor out of phase.

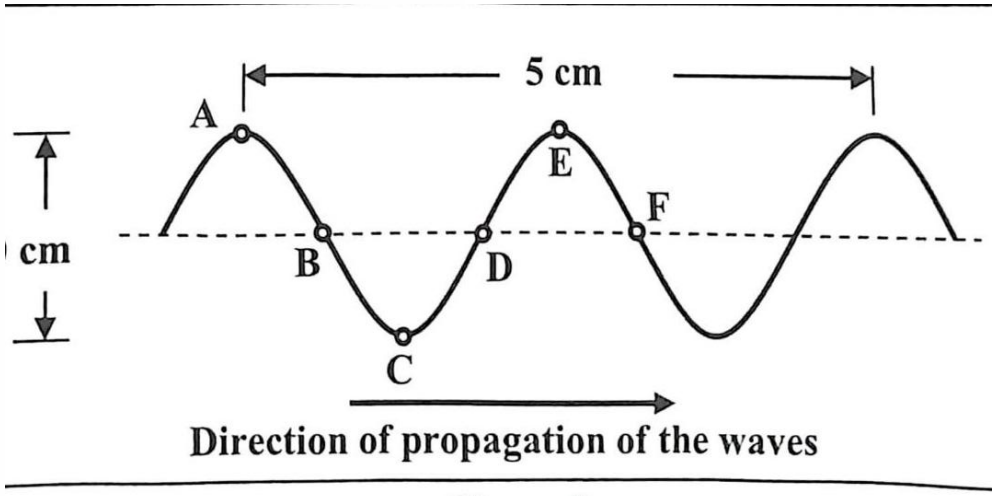


Figure 2

3)Define frequency; then, calculate its value.

4)Deduce the period of the wave.

5) Determine the wavelength and the amplitude of the wave

Quiz Waves Time: 20min

20 vibrations per 2s,

1)Specify the type (longitudinal or transverse) and the nature (mechanical or electromagnetic) of the produced wave.

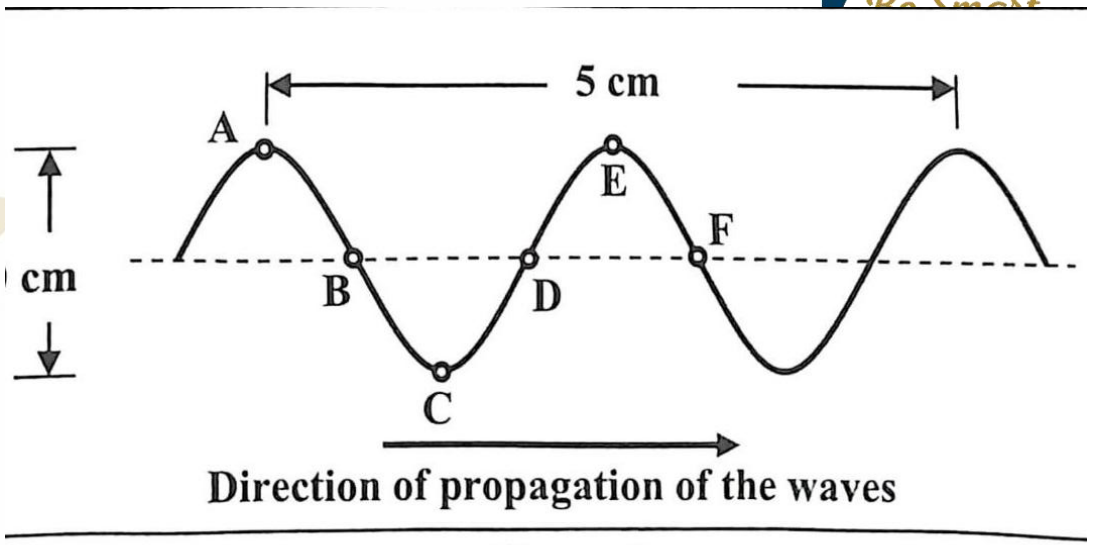


Figure 2

This wave is mechanical wave since it needs a medium to propagate in.

This wave is transverse since the direction of propagation of the wave is perpendicular to the direction of vibration of the particles of the medium

20 vibrations per 2s,

2)Referring to figure 2. Choose two points:

a) Vibrating in-phase

The two points are A and E

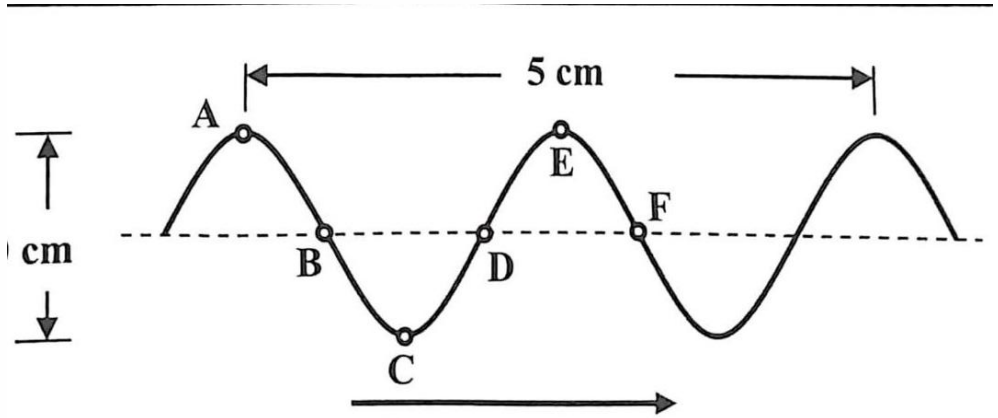


Figure 2

b)Vibrating out of phase.

The two points are A and E.

c)Vibrating neither in-phase nor out of phase.

The two points are A and B.

Quiz Waves Time: 20min

20 vibrations per 2s,

3)Define frequency; then, calculate its value.

Frequency is the number of vibrations per second.

$$f = \frac{n}{t} = \frac{20}{2} \Rightarrow f = 10Hz$$

4) Deduce the period of the wave.

$$T = \frac{1}{f} = \frac{1}{10} \Rightarrow T = 0.1sec$$

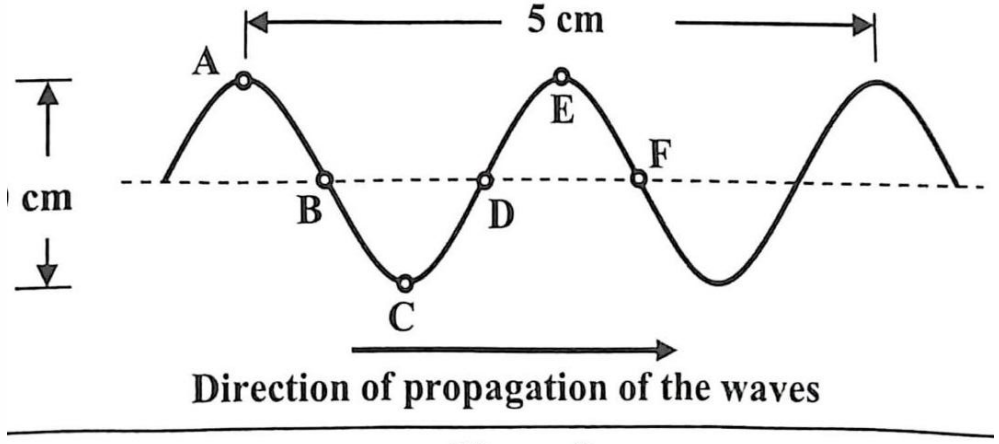


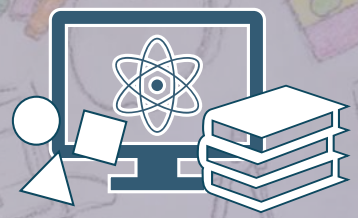
Figure 2

5)Determine the wavelength and the amplitude of the wave.

$$2\lambda = 5cm \Rightarrow \lambda = 2.5cm$$

$$2a = 10cm \Rightarrow a = 5cm$$

The End



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