3 Wi-Fi signals are electromagnetic waves that can be transmitted at frequencies of 2.4 GHz and 5.2 GHz.

(a) (i) State a similarity of the Wi-Fi signals at 2.4 GHz and 5.2 GHz.

(1)

.....

(ii) The two Wi-Fi signals have different frequencies.

State another difference between the Wi-Fi signals.

(1)

.....

(b) (i) State the formula linking speed, frequency and wavelength.

(1)

(ii) Calculate the wavelength of Wi-Fi signals transmitted at 5.2×10^9 Hz.

[speed of light = 3.0×10^8 m / s]

(2)

wavelength = ... m

(c) (i) Which type of wave is a Wi-Fi signal?

(1)

☒ **A** longitudinal

☒ **B** mechanical

☒ **C** sound

☒ **D** transverse

(ii) Describe the difference between a transverse wave and a longitudinal wave.
You may draw a diagram to help your answer.

(2)

(Total for Question 3 = 8 marks)