22 The diagram shows a beam supported on two pivots.
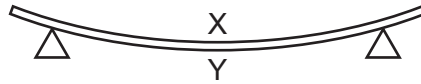

Which statement describes the state of the top surface X and of the bottom surface Y?

A   Both X and Y are in compression.

B   Both X and Y are in tension.

C   X is in compression and Y is in tension.

D   X is in tension and Y is in compression.

23 A beam of red laser light has length 1.0 m.

What is the order of magnitude of the number of wavelengths of the red light in 1.0 m?

A 10^4 **B** 10^6 **C** 10^8 **D** 10^{10}

24 When a car travelling with constant velocity passes a stationary observer, the observer hears a change in the frequency of the sound emitted by the car.

Which statement is correct?

A   The change in frequency is greater as the car moves away than as it approaches.

B   The greater the speed of the car, the greater the change in observed frequency.

C   The observed frequency is lower as the car moves towards the observer and higher as the car moves away from the observer.

D   The volume of the sound heard by the observer does not change as the car approaches.