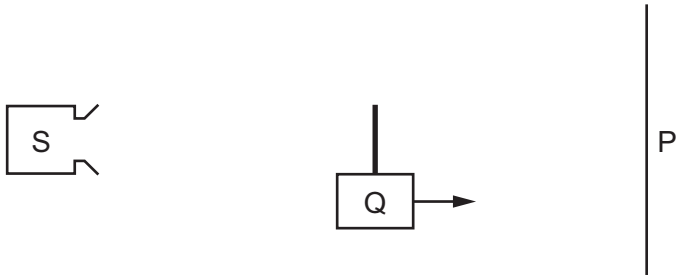
23 Source S emits microwaves with a constant amplitude. The microwaves hit a metal screen P and are reflected. A stationary wave is formed between S and P. The wavelength of the microwaves is much smaller than the distance between S and P.



A detector Q is moved at a slow, constant speed from S to P.

What happens to the amplitude of the signal detected by Q?

A decreases steadily

B increases and decreases regularly

C increases steadily

D remains constant

24 The siren of a moving police car emits a sound wave with a frequency of 440 Hz. A stationary observer hears sound of frequency 494 Hz. The speed of sound in the air is 340 $m\,s^{-1}$.

What could be the speed and the direction of movement of the car?

A 37 $m\,s^{-1}$ directly towards the observer

B 37 $m\,s^{-1}$ directly away from the observer

C 42 $m\,s^{-1}$ directly towards the observer

D 42 $m\,s^{-1}$ directly away from the observer

25 An electromagnetic wave has a wavelength of 138 pm in a vacuum.

To which region of the electromagnetic spectrum does this wave belong?

A radio wave

B microwave

C visible light

D X-ray