6 **(a)** State two differences between progressive waves and stationary waves.

1. .....

.....

2. .....

..... [2]

(b) A source S of microwaves is placed in front of a metal reflector R, as shown in Fig. 6.1.

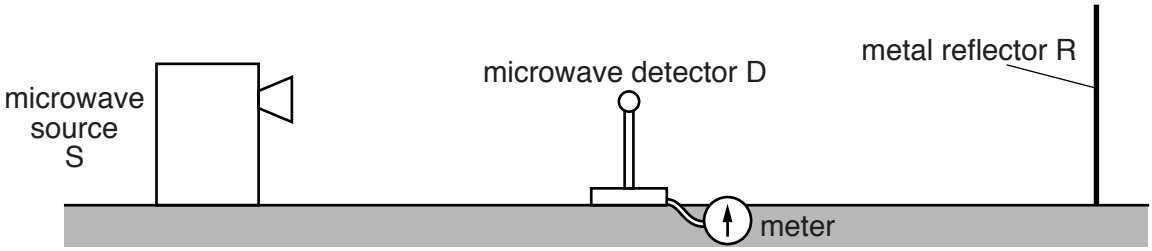

Fig. 6.1

A microwave detector D is placed between R and S.

Describe

(i) how stationary waves are formed between R and S,

.....

.....

.....

..... [3]

(ii) how D is used to show that stationary waves are formed between R and S,

.....

.....

..... [2]

(iii) how the wavelength of the microwaves may be determined using the apparatus in Fig. 6.1.

.....

.....

..... [2]

(c) The wavelength of the microwaves in **(b)** is 2.8 cm. Calculate the frequency, in GHz, of the microwaves.

frequency = ... GHz [3]

Please turn over for Question 7.