7 **(a)** Apparatus used to produce stationary waves on a stretched string is shown in Fig. 7.1.

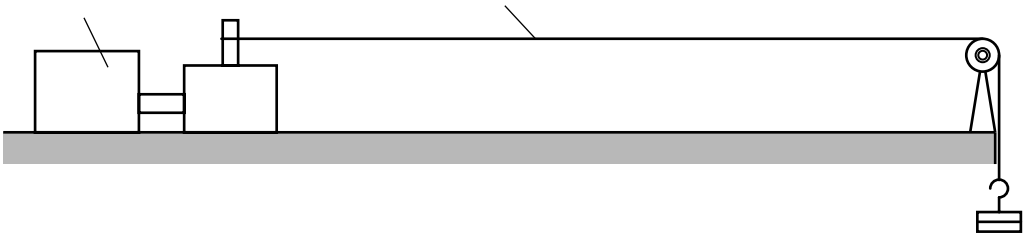

Fig. 7.1

The frequency generator is switched on.

(i) Describe two adjustments that can be made to the apparatus to produce stationary waves on the string.

1. .....

.....

2. .....

.....

[2]

(ii) Describe the features that are seen on the stretched string that indicate stationary waves have been produced.

..... [1]

(b) The variation with time *t* of the displacement *x* of a particle caused by a progressive wave R is shown in Fig. 7.2. the same particle, the variation with time *t* of the displacement *x* caused by a second wave S is also shown in Fig. 7.2.

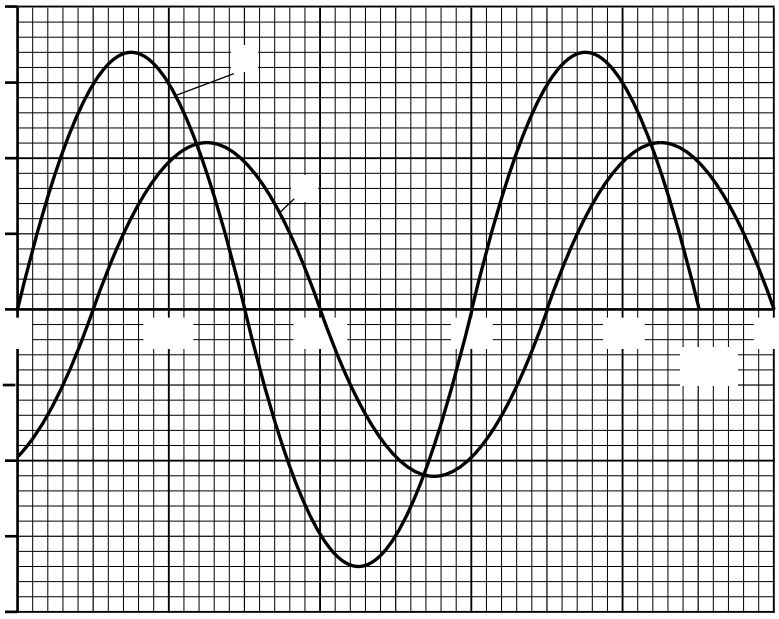

Fig. 7.2

(i) Determine the phase difference between wave R and wave S. Include an appropriate unit.

phase difference = ... [1]

(ii) Calculate the ratio

$$\frac{\text{intensity of wave R}}{\text{intensity of wave S}}.$$

ratio = ... [2]

[Total: 6]