3 **(a)** State the meaning of

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**(i)** *diffraction*,

.....

.....

**(ii)** *phase difference*,

.....

.....

**(iii)** *coherence*.

.....

.....

[3]

**(b)** Fig. 3.1 shows two microwave emitters $M_1$ and $M_2$. A microwave detector is moved along the line AB.

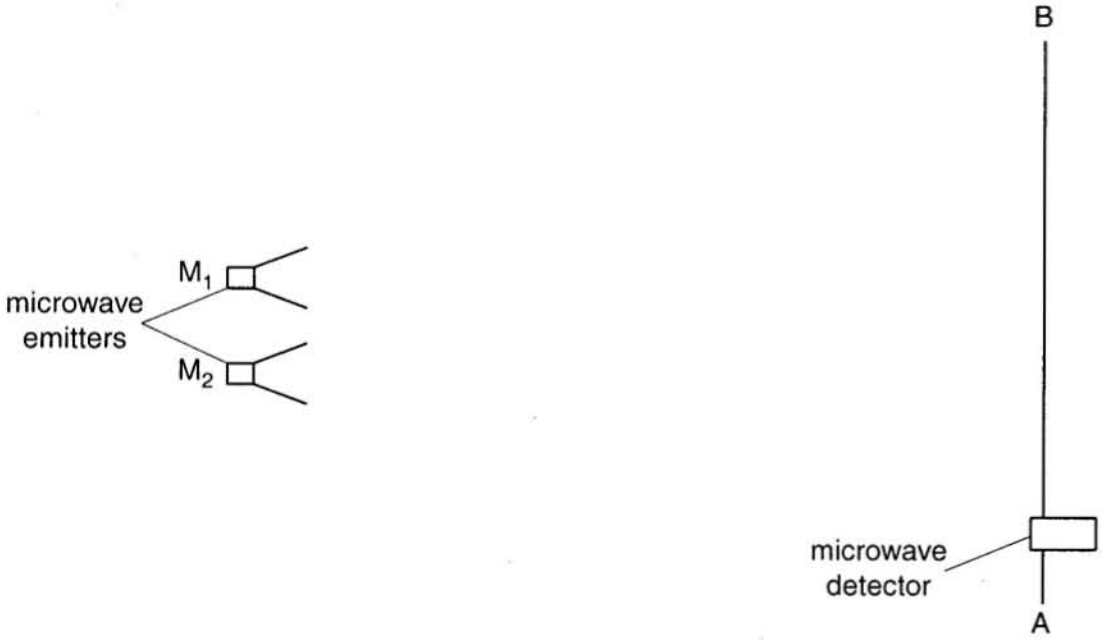


**Fig. 3.1**

(i) Explain how interference fringes are formed along the line AB.

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.....[3]

(ii) The following changes are made independently. Describe, in each case, the effect on the position and intensity of the fringes.

1. The intensity of the microwaves emitted from both $M_1$ and $M_2$ is increased.

.....

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.....[2]

2. The phase difference between the microwaves emitted from $M_1$ and $M_2$ is changed by $\pi$ radians.

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.....[2]





[Turn over