

10 (a) White light passes through a cloud of cool low-pressure gas, as illustrated in Fig. 10.1.

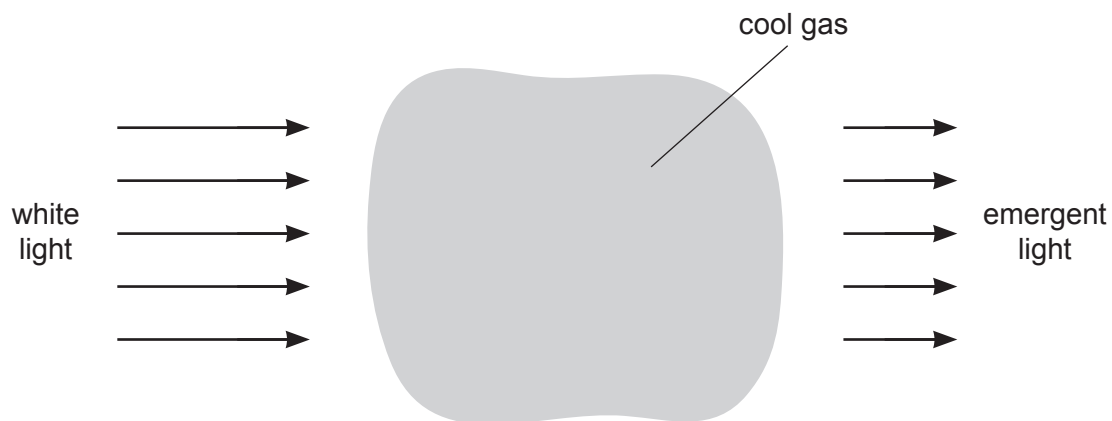


Fig. 10.1

For light that has passed through the gas, its continuous spectrum is seen to contain a number of darker lines.

Use the concept of discrete electron energy levels to explain the existence of these darker lines.

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(b) The uppermost electron energy bands in a solid are illustrated in Fig. 10.2.

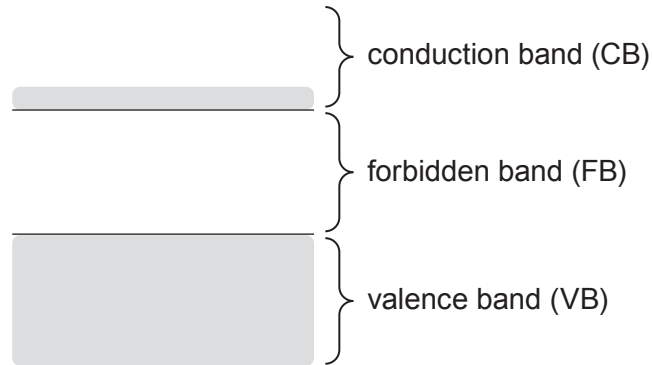


Fig. 10.2

Use band theory to explain the dependence on light intensity of the resistance of a light-dependent resistor (LDR).

[5]