

**Q24.** The negation of the statement "Plants take in  $\text{CO}_2$  and give out  $\text{O}_2$ " is

**(a)** Plants do not take in  $\text{CO}_2$  and do not give out  $\text{O}_2$

**(b)** Plants do not take in  $\text{CO}_2$  or do not give out  $\text{O}_2$

**(c)** Plants take in  $\text{CO}_2$  and do not give out  $\text{O}_2$

**(d)** Plants take in  $\text{CO}_2$  or do not give out  $\text{O}_2$

**Sol:** (b) Now, p: Plants take in  $\text{CO}_2$  and give out  $\text{O}_2$ .

Let q: Plants take in  $\text{CO}_2$ .

r: Plants give out  $\text{O}_2$ .

$\sim$ q: Plants do not take in  $\text{CO}_2$ .

$\sim$ r: Plants do not give out  $\text{O}_2$ .

$\sim$ (q  $\wedge$  r): Plants do not take in  $\text{CO}_2$  or do not give out  $\text{O}_2$ .