

**Question 3.1:**

The storage battery of a car has an emf of 12 V. If the internal resistance of the battery is  $0.4\Omega$ , what is the maximum current that can be drawn from the battery?

Answer

Emf of the battery,  $E = 12 \text{ V}$

Internal resistance of the battery,  $r = 0.4 \Omega$

Maximum current drawn from the battery =  $I$

According to Ohm's law,

$$E = Ir$$

$$I = \frac{E}{r}$$

$$= \frac{12}{0.4} = 30 \text{ A}$$

The maximum current drawn from the given battery is 30 A.