A thermocouple can be used for temperature measurement. This is based on

(A) Seebeck effect

(B) Peltier effect

(C) Thomson effect

(D) Joule’s law

The correct answer is:

(A) Seebeck effect

Explanation:

A **thermocouple** measures temperature based on the **Seebeck effect**, which is the generation of an electromotive force (EMF) when there is a temperature difference between the junctions of two dissimilar metals.

- **Seebeck effect**: Voltage is produced due to a temperature gradient across different conductors (basis of thermocouples).
- **Peltier effect**: Heat is absorbed or released when electric current passes through the junction of two different materials (used in

thermoelectric cooling).

- **Thomson effect**: Heat is absorbed or evolved when current flows in a conductor with a temperature gradient.
- **Joule’s law**: Describes the heating effect of electric current (not related to thermocouples directly).

So, thermocouples operate on the **Seebeck effect**.