Q. Define Moore’s law and explain why it has now stopped being true. Be sure to describe all of the physical limitations that have prevented Moore’s law from continuing to be true.

Ans:

**Moore's law** is an empirical observation made by Intel co-founder **Gordon Moore** in **1965**, which states that the number of **transistors on an integrated circuit doubles every two years**. This observation was based on the rapid advancement of computer technology in the 1960s and 70s and became a **widely accepted** maxim for **predicting the future of computing technology**.

However, **Moore's law has now stopped being true** due to the **physical limitations of transistors**. Specifically, the size of transistors has reached a point where they can no longer be reduced any further. This is because there are physical limits to the number of transistors that can be placed onto a given surface area. Furthermore, as transistors become smaller, the **amount of heat they generate also increases**, leading to further physical limitations. Finally, the power requirements of transistors have also become an issue, as larger transistors are needed to provide the necessary power to the circuits.

In conclusion, Moore's law has now stopped being true due to the physical limitations of transistors, including their size, heat generation, and power requirements.