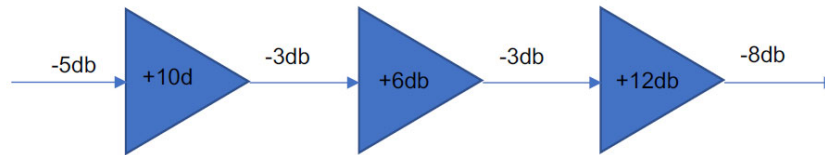


## T02: Physical Layer

**Q1:** Given the diagram below with 3 segments, what is the final output if the **input power is 1 watt**?



**Q2:** Sketch the differential Manchester and MLT-3 encoding for the bit stream: 1001111100010001, assuming the line is **initially in the low state**?

**Q3:** What is bandwidth? how is it different from speed, latency, and throughput?

**Q4:** Name a few last mile technologies? What is the key significance of NBN?

**Q5:** What is the significance of using millimeter waves in 5G compared to the frequency band used in 4G? what is the disadvantage of using millimeter waves?