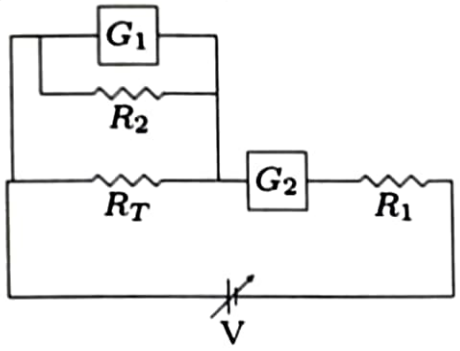
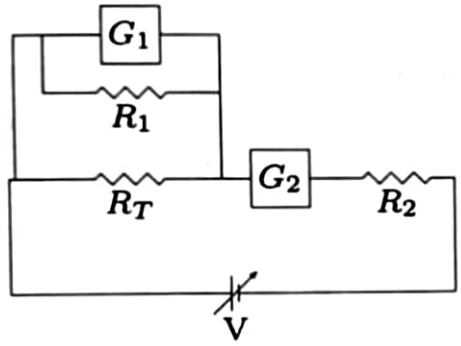
Q. 09 To verify Ohm's law, a student is provided with a test resister R_T, a high resistance R_1, and a small resistance R_2, two identical galvanometers G_1 and G_2, and a variable voltage source V. The correct circuit to carry out the experiment is (2010)

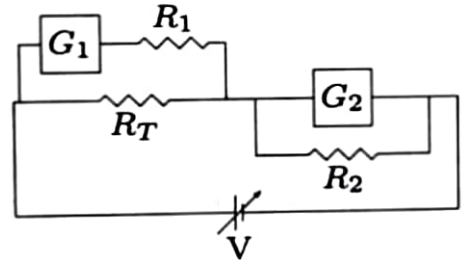
(A)



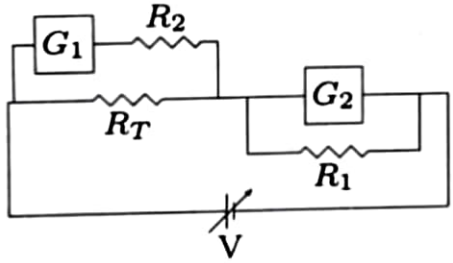
(B)



(C)



(D)



Sol. To verify Ohm's law, we need to measure the voltage across the test resistance R_T and current passing through it. The voltage can be measured by connecting a high resistance R_1 in series with galvanometer. This combination becomes a voltmeter and should be connected in parallel to R_T. The current can be measured by connecting a low resistance R_2 (shunt) in parallel with galvanometer. This combination becomes an ammeter and should be connected in series to measure the current through R_T.

Ans. C ⊡