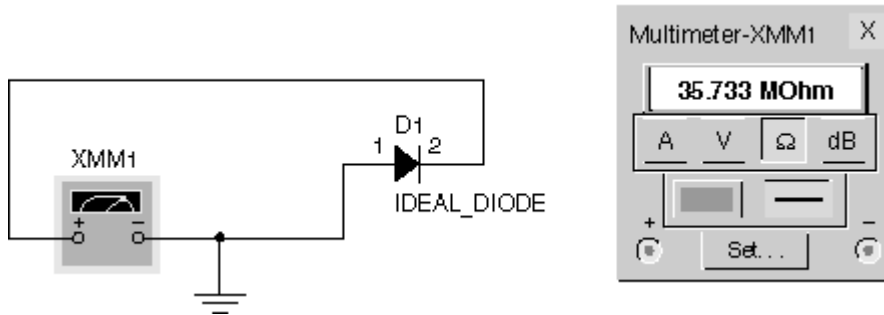


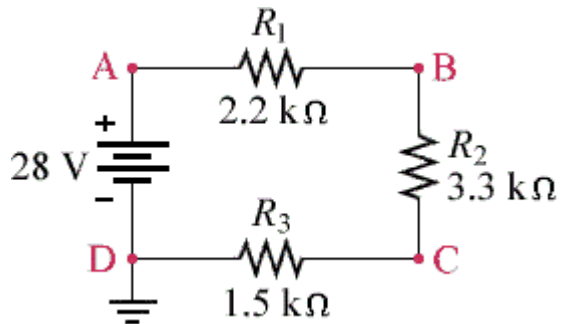
Circuit Debugging Round-II



1. What is wrong with this diode?

- A. open
- B. short
- C. **nothing**
- D. not enough data

Diode is in reverse biased and hence reflecting the resistance in Megohm. It is normal behavior of a diode, nothing is wrong with Diode. So answer should be [C] nothing.



2. In the given circuit, what type of failure will cause the voltage at point B to equal the voltage at point C?

- A. R1 shorts
- B. R2 shorts
- C. R3 shorts

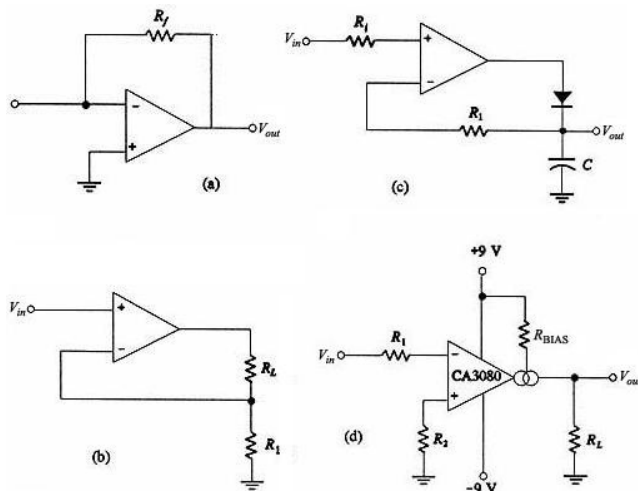
D. R2 opens

Answer: Option B

The total current in circuit is $i = 28/10\text{kohm} = 2.8\text{ma}$.

From nodal analysis $(V_b - V_c)/R_2 = 2.8\text{ma}$ for $V_b = V_c$ R2 must be zero.

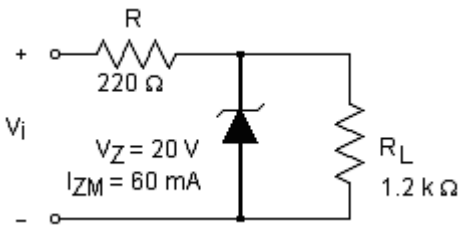
Hence R2 is short circuited.



3. Which circuit is known as a current-to-voltage converter?

- a) (a) b) (b) c) (c) d) (d)

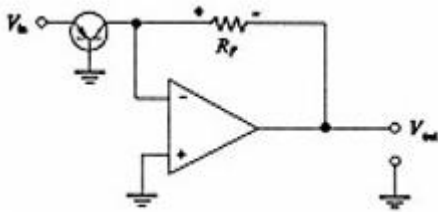
Basic op-amp with feedback resistance itself called current to Voltage converter.



4. Which element dictates the maximum level of source voltage?

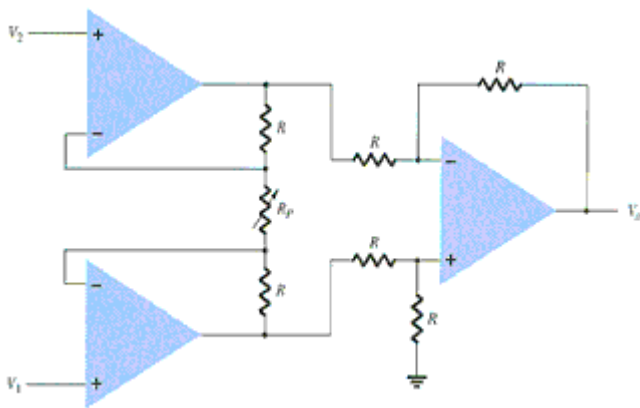
- a) V_Z b) I_{ZM} c) I_Z d) None of these

For maximum Zener current I_{ZM} the drop across R_L is high which also related to maximum source voltage.



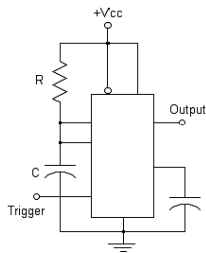
5. Refer to the given figure. This circuit is a setup for

- a) an antilog amplifier.
- b) a constant-current source.
- c) an instrumentation amplifier.
- d) an isolation amplifier.



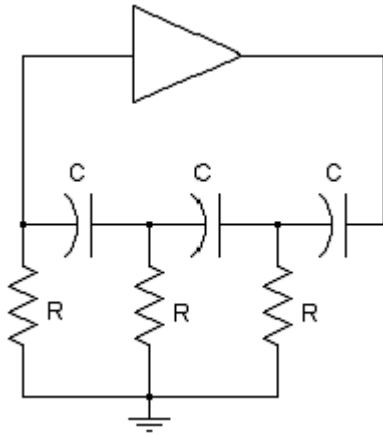
7. This circuit is an example of an _____

- a) dc voltmeter
- b) display driver
- c) instrumentation amplifier
- d) None of the above



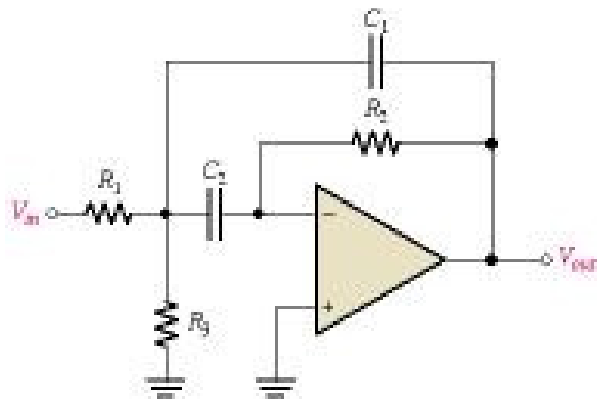
8. Which application best describes this 555 timer Multivibrator circuit?

- a) Monostable
- b) Astable
- c) Bistable
- d) Free-running



9. This circuit is a _____ oscillator.

- a) RC phase-shift
- b) Wien bridge
- c) Colpitts
- d) Hartley



10. The gain of the multiple-feedback band-pass filter above is equal to which of the following?
Assume $C = C_1 = C_2$.

- a) $A_0 = R_2 / R_1$
- b) $A_0 = R_1 / R_2$
- c) $A_0 = R_2 / 2 R_1$
- d) $A_0 = R_1 / 2 R_2$