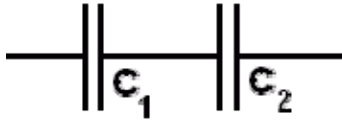


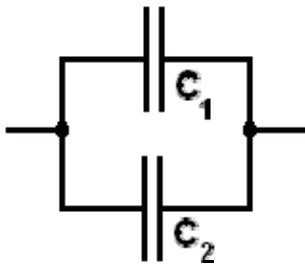
Worksheet - 05 - Capacitors

Name:

1. What is the unit of Capacitance?
2. Are these capacitors in series or parallel?



3. Write down the formula for the total capacitance of the capacitors in the circuit above.
4. In the circuit above if $C_1 = 20\mu\text{F}$ and $C_2 = 30\mu\text{F}$, calculate the combined capacitance.
5. Write down the formula for the total capacitance of the capacitors in the circuit below.



6. In the circuit above, are the capacitors in series or parallel?
7. In the circuit above if $C_1 = 20\mu\text{F}$ and $C_2 = 30\mu\text{F}$, calculate the combined capacitance.
8. If the potential difference across a capacitor is doubled what happens to the charge stored in the capacitor?

9. If the potential difference across a capacitor is doubled what happens to the energy stored in the capacitor?

10. In what units is the charge in a capacitor measured?

11. Capacitors _____ direct current.

Capacitors _____ low frequencies but not _____.

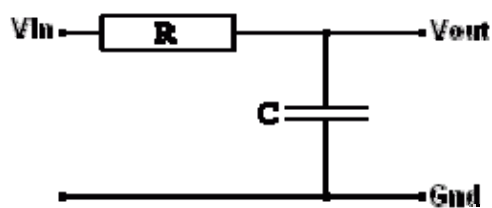
Capacitors _____ high frequencies _____.

12. When a capacitor is used to pass AC signals from one module to another, it is called a _____ capacitor.

13. When a capacitor is used to remove 50 Hz or 100 Hz ripple from the output of a power supply, it is called a _____ capacitor.

14. When a capacitor is used to remove alternating voltages from a point in a circuit it is called a _____ capacitor.

15. Write down the formula for the time constant of an RC network as shown below.



16. In the circuit above, if $R = 358 \text{ k}$ and $C = 31 \mu\text{F}$, calculate the time constant of the circuit.

17. In the circuit above, if the capacitor is initially uncharged, if $R = 1\text{M}$ and $C = 1 \mu\text{F}$, how long will it take for the capacitor to become fully charged?

18. In the circuit above, if C is initially uncharged and if $R = 1\text{M}$ and $C = 1\text{ Microfarad}$, after one second, what percentage of the supply voltage will be across C?
19. In the circuit above, if C is initially uncharged and if $R = 1\text{M}$ and $C = 1\text{ Microfarad}$, how many milliseconds does it take for the capacitor to charge to half the supply voltage?
20. Unwanted high frequency pulses are preventing a digital counter from functioning correctly. A capacitor can be used to _____ the power supply to the counter circuit chips.