

Capacitor and RC Circuits Questions

Capacitors

Question 1

Which is the largest unit of capacitance?

- A. microfarad (μF)
- B. millifarad (mF)
- C. picofarad (pF)
- D. nanofarad (nF)

Question 2

Which type of capacitor must be connected in the circuit the right way round?

- A. Electrolytic
- B. Non-electrolytic

Question 3

Which type of capacitor could have a value of $100\mu\text{F}$?

- A. Electrolytic
- B. Non-electrolytic

Question 4

What is $0.47\mu\text{F}$ in nF?

- A. 0.0047 nF
- B. 0.047 nF
- C. 47 nF
- D. 470 nF

Question 5

What is 220 nF in μF ?

- A. $0.22\mu\text{F}$
- B. $2.2\mu\text{F}$
- C. $2200\mu\text{F}$
- D. $220,000\mu\text{F}$

Question 5

What is $33\ \mu\text{F}$ in standard form?

- A. $33 \times 10^{-3}\ \text{F}$
- B. $33 \times 10^{-6}\ \text{F}$
- C. $33 \times 10^{-9}\ \text{F}$
- D. $33 \times 10^{-12}\ \text{F}$

Question 6

What is the capacitance of a capacitor of value $27 \times 10^{-9}\ \text{F}$

- A. 27 mF
- B. 27 μF
- C. 27 nF
- D. 27 pF

Question 7

What is a capacitance of 0.056 nF in picofarads?

- A. 5.6 pF
- B. 56 pF
- C. 560 pF
- D. 5600 pF

Question 8

What is a capacitance of 10,000 pF in microfarads?

- A. 10 μF
- B. 1 μF
- C. 0.1 μF
- D. 0.01 μF

RC Circuits

Question 9

What is the time constant of an RC circuit where $C = 100\ \mu\text{F}$ and $R = 10\ \text{k}\Omega$?

- A. 1 second
- B. 10 second
- C. 100 seconds
- D. 1000 seconds

Question 10

What does the time constant of a circuit represent?

- A. The time for the capacitor to discharge fully
- B. The time for the capacitor to discharge to 0.7 of the original value
- C. The time for the capacitor to discharge by half
- D. The time for the capacitor to discharge to 37% of the original value

Question 11

What are the units of the time constant, tau (τ) in the equation $\tau = R \times C$?

- A. Farads
- B. Ohms
- C. Seconds
- D. Hertz (i.e. per second)

Question 12

An RC circuit has a capacitor with a value of 47 nF. If the time constant needs to be 0.2 ms, what value of resistor should be used?

- A. 240 Ω
- B. 4300 Ω
- C. 24 k Ω
- D. 47 k Ω

Question 13

An RC circuit uses a 470 k Ω resistor to give a time constant of 0.1 seconds. What value of capacitor is used?

- A. 200 pF
- B. 200 nF
- C. 200 μ F
- D. 200 mF

Question 14

An RC circuit uses a 330 nF capacitor and a 270 k Ω resistor. What is the time constant of the circuit?

- A. 90 ns
- B. 90 μ s
- C. 90 ms
- D. 90 s

Answers

1. B
2. A
3. A
4. D
5. A
6. C
7. B
8. D
9. A
10. D
11. C
12. B
13. B
14. C

Website

http://www.pfnicholls.com/Electronics_Resources/QuestionIndex.html

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