

EE 305: Module 1 (Circuit) Quiz, 26th Sep 2025

strarflower@gmail.com [계정 전환](#)



Quiz Questions

Find the incorrect description about closed-loop amplifier compared to the open-loop configuration. (Choose only 1 answer)

- ☐ Increased Output Resistance
- ☐ Increased Input Resistance
- ☐ Less Gain Variation
- ☐ Increased Energy Transfer

Find the incorrect description about the phase relationships between voltage and current when a cosine voltage signal is applied to a linear electrical network with R, L, and C as components. (Choose only 1 answer)

- ☐ Current is in Phase with Voltage if R is non-zero while $L=0$ and $C=0$
- ☐ Current leads voltage by some angle between 0 and 90-degrees when R and C are non-zero while $L=0$
- ☐ Current lags voltage by 90-degree when C is non-zero while $R=C=0$



Choose the closest percentage of the output voltage level after a time constant ($=RC$), when it is compared to the full voltage-level in the steady-state, when a step function is applied to a RC low-pass filter circuit. (Choose only 1 answer)

- ☐ 59%
- ☐ 63%
- ☐ 67%
- ☐ 71%

What is the signal function we cannot generate using function generators? (Choose only 1 answer)

- ☐ Square Wave
- ☐ Random Bit Pattern
- ☐ Arbitrary Wave
- ☐ Clock Pulse

What is the nominal capacitance value of a ceramic capacitor with the label '476' on its surface? (Choose only 1 answer)

- ☐ 47 micro-farad
- ☐ 47 nano-farad
- ☐ 4.7 micro-farad
- ☐ 4.7 nano-farad



Find the incorrect description about the Sallen-Key low-pass filter. (Choose only 1 answer)

- ☐ Amplify Input Signal with Programmable Gain
- ☐ Filter High-Frequency Signal Components
- ☐ Isolate Input/Output Impedance
- ☐ Convert Voltage Signals to Current Signals

Find a device that is not a transducer from the following list. (Choose only 1 answer)

- ☐ Transconductor
- ☐ Sallen-Key Filter
- ☐ Actuator
- ☐ Thermometer

What is the device in the speaker that converts the incoming audio signals to the electrical signal? (Choose only 1 answer)

- ☐ Resistor
- ☐ Battery
- ☐ Inductor
- ☐ Capacitor



Find the description about the output response from a linear electrical network (a circuit that consists of R, L, or C components) that is impossible when a sine wave is applied as an input. (Choose only 1 answer)

- ☐ Amplitude Degradation
- ☐ Phase shift
- ☐ Frequency Shift
- ☐ Signal Inversion

Find the incorrect description about LM386 operational amplifier you used during the experiment 3. (Choose only 1 answer)

- ☐ Differential Input & Single-ended Output
- ☐ Programmable Gain
- ☐ Bandwidth of 1MHz
- ☐ Single Supply voltage (Vs)

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