Salahaddin University-Erbil

COLLEGE OF ENGINEERING <<>>Electrical Eng. Department
2nd SEMESTER
«FINAL TERM EXAMINATIONS» First Attempted
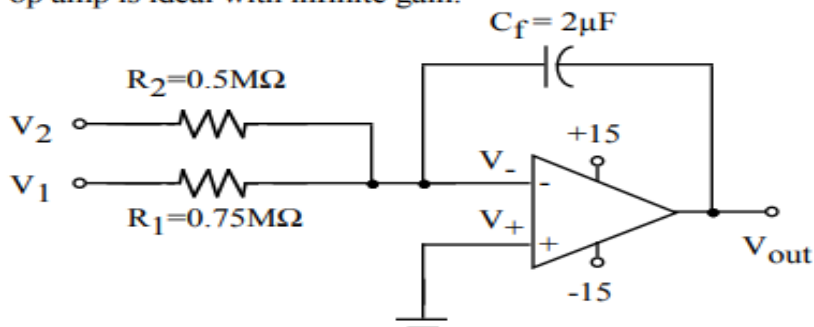TIME ALLOWED <<**2 Hours**>> Date << 6.5.2024>>
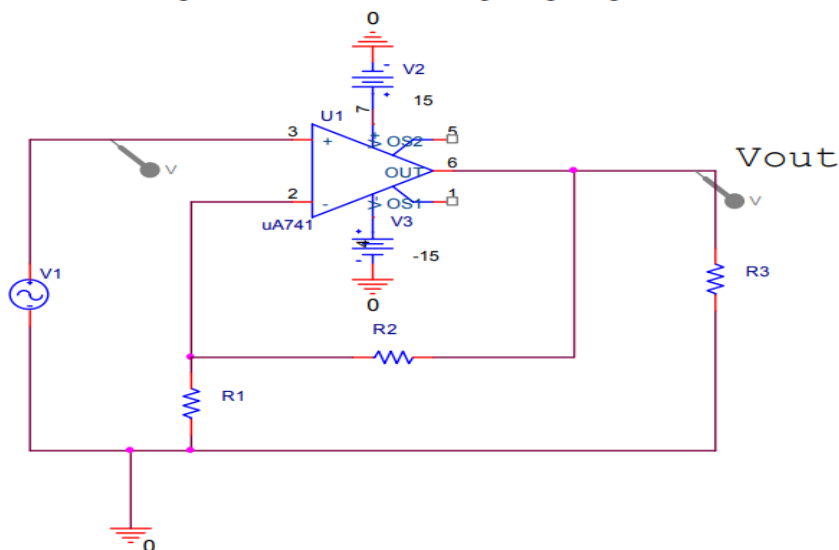Lina N. Tofiq   Subject<<Analoge IC Design>>

QUESTION NO.1
[30 marks]

14. For the circuit shown below, $V_1 = 10\sin(200t)$ and $V_2 = 15\sin(200t)$. What is V_{out}? The op amp is ideal with infinite gain.

QUESTION NO.2
[30 marks]

Below is a Capture schematic of an op-amp amplifier circuit that you should recognize.

1. What kind of amplifier is it?
2. What are the two "golden rules: of op-amp analysis?
3. Use these rules to derive an expression for Vout in terms of R1, R2 and V1.
4. If V1=500mV, R1=1K and R2=4K, what is Vout?
5. Find the current through the load resistor, R3, assuming the component values in part 4 and R3= 2K ohms.

QUESTION NO.3
[40 marks]

A.[20 marks]
«Find out the slew rate if an op-amp is necessary to amplify a signal through 4 volts of peak voltage at a 30kHz of frequency.»

B. [20 marks]
Design a phase-shift oscillator for a frequency of 800 Hz.The capacitors are to be 10 nF.

End