

ANSWER ALL QUESTIONS

Question One:

- 1) a) Write the equation of current for the p-N junction diode at forward and reverse bias, draw its I-V characteristic.
- b) Explain how the depletion region of P-N junction diode was built.

Question two:

- 2) Determine  $V_o$  for the circuits shown in Fig.1

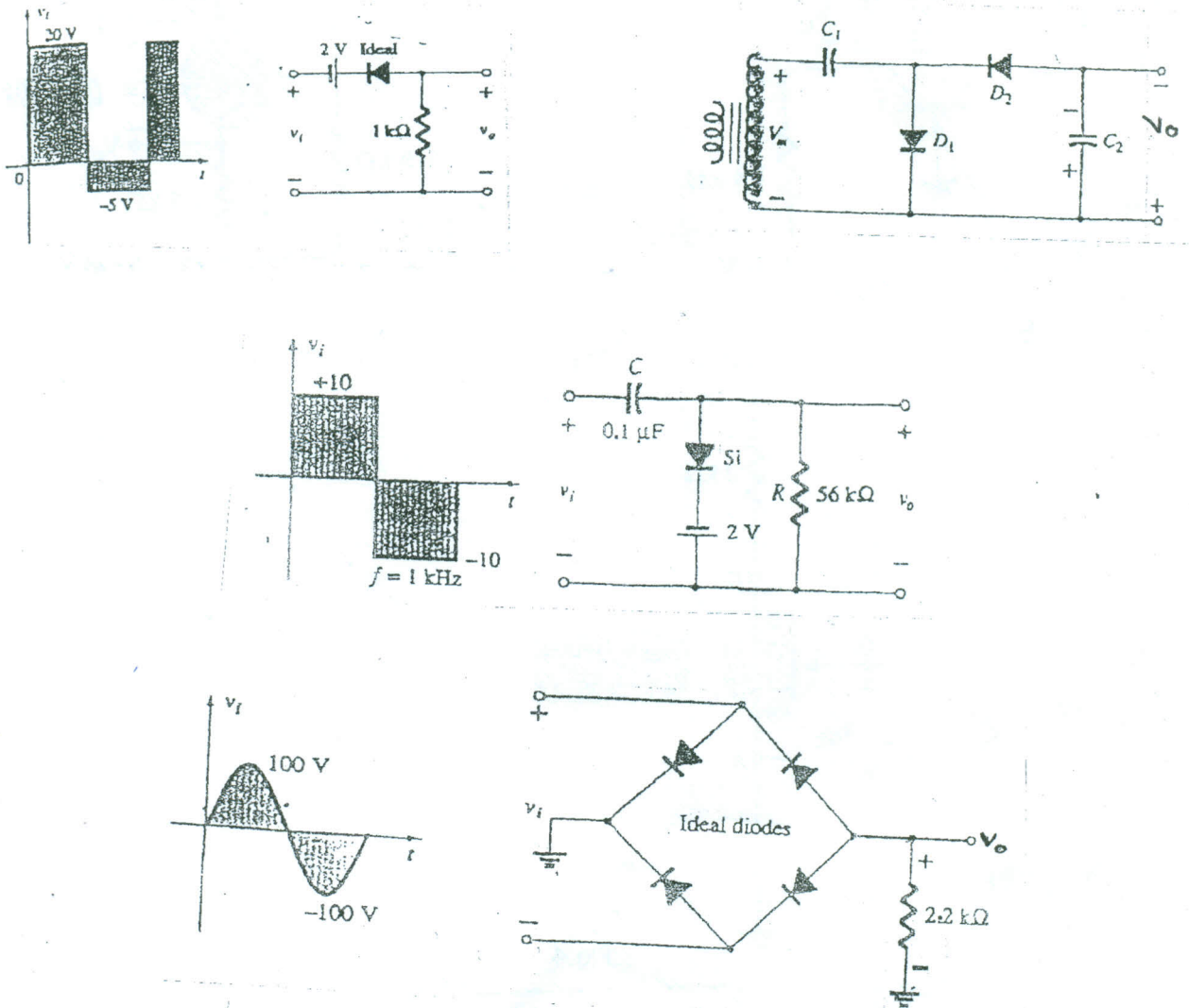


Fig.1

Question three:

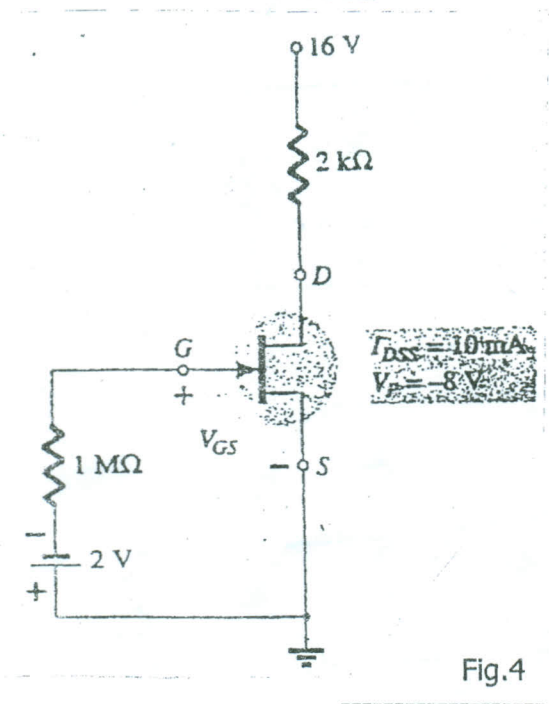
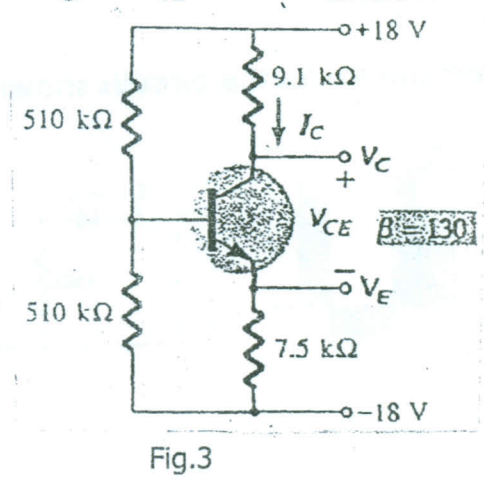
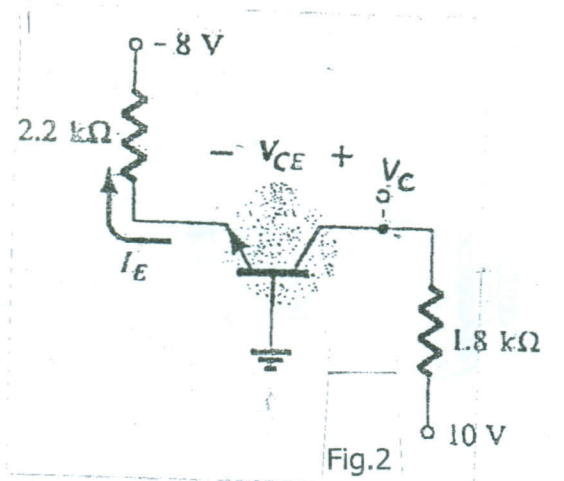
3) determine  $I_C$ ,  $I_B$ ,  $I_E$ ,  $V_B$ ,  $V_E$ ,  $V_C$ ,  $V_{CE}$ ,  $V_{CB}$  for the circuits shown in Figs.2,3

Question Four:

- 4) a) Draw the structure and explain the operation of p-channel depletion and enhancement MOSFET.
- b) Explain how can use the BJT and the CMOS as inverters.

Question Five :

5) a) Determine  $I_{DQ}$  , and  $V_{GSQ}$  for the circuit shown in Fig.4



Good Luck