

Answer the following questions:

- Q1)a-Draw and Explain briefly the structure and operation of P-N junction diode.
b-Is the depletion region width of P-N junction diode is larger or smaller in forward bias than in reverse bias ? Why?
- Q2) Determine the value of V_o for the circuits shown in Fig.1
- Q3) Determine I_B and V_{CB} for the circuit shown in Fig.2 .
- Q4) Determine R_c , R_E , and R_B for the circuit shown in Fig.3 , if $I_{C_{sat}} = 10 \text{ mA}$,
 $V_c = 20\text{v}$, $I_c = 4\text{mA}$, $\beta = 100$.
- Q5)a-Draw and Explain the operation of P-channel JFET.
b- Explain the CMOS as inverter.
- Q6) Determine I_{DQ} , V_{GSQ} , V_D , V_s , V_{DS} , V_{DG} , for the circuit shown in Fig.4 , if
 $I_{DSS} = 10 \text{ mA}$, and $V_p = -8 \text{ v}$.

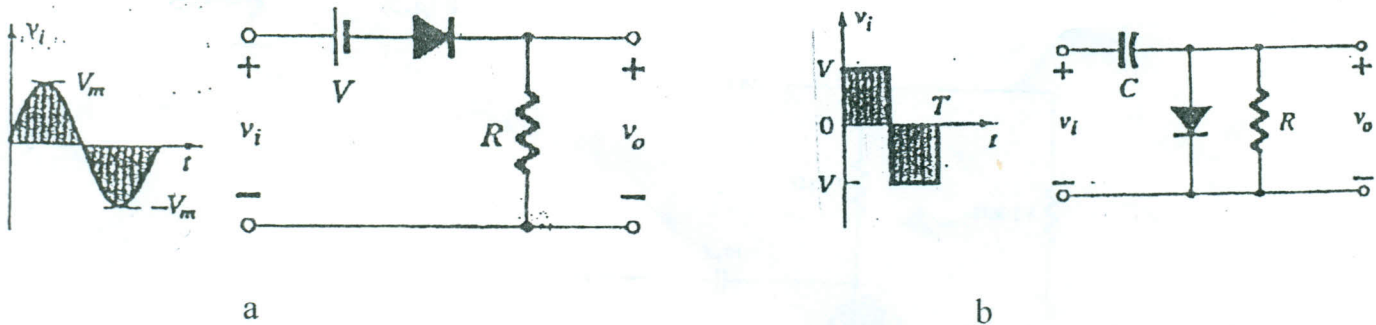
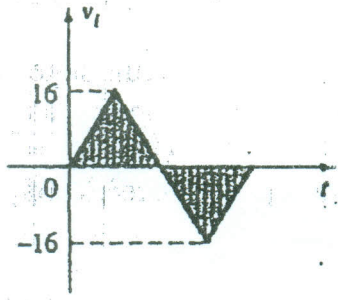
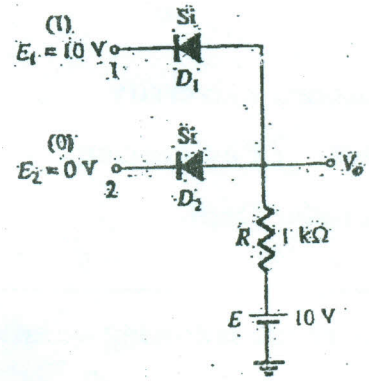
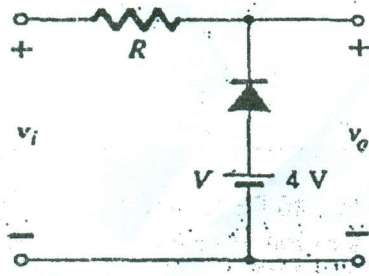


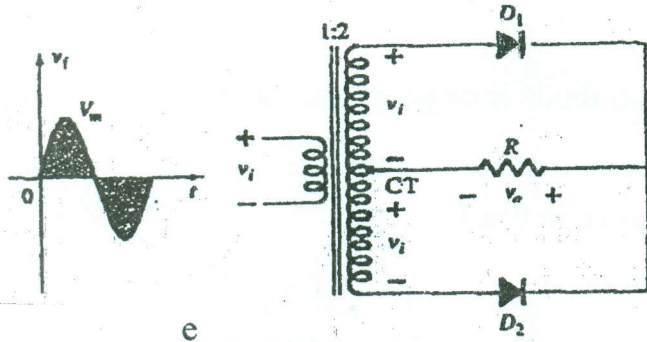
Fig.1



c



d



e

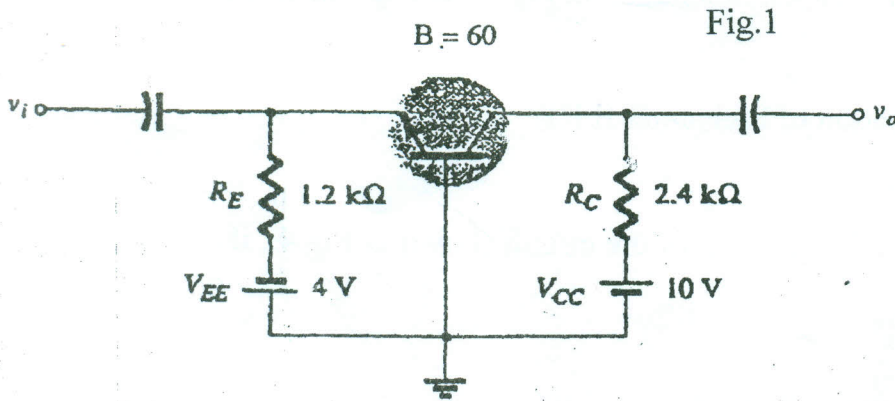


Fig.2

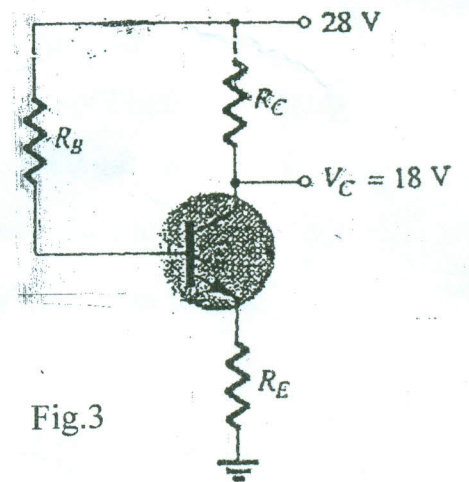


Fig.3

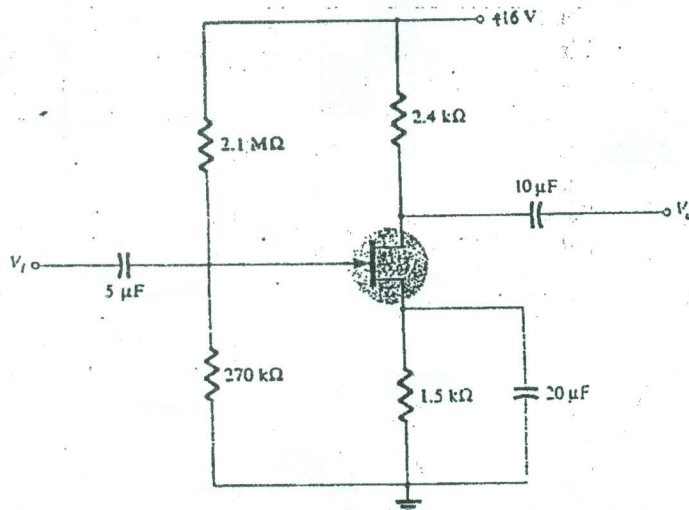


Fig.4