

Attempts all questions

Questions		Marks	Course Outcome (CO)
Q.1	(a) Si pn junction at 300K has $N_d=10^{20}/\text{cm}^3$ and $N_a=10^{15}/\text{cm}^3$. Find V_{bi} , W and C_J for reverse bias (i) $V_R=0V$ & (ii) $V_R=10V$.	4	CO1
	(b) Draw and discuss the energy band diagram of nN GaAs-AlGaAs heterojunction in no bias condition.	4	
Q.2	(a) Draw and discuss the energy band diagram of MOS structure for p-type substrate in Inversion mode of operation.	4	CO2
	(b) Define the term threshold voltage (V_{th})? Why V_{th} value is positive for n-type enhancement MOSFET? Find the expression of threshold voltage from the drawn energy band diagram of question 2(a).	4	