

淡江大學九十三年學年度轉學生招生考試試題

53-1

系別：電機工程學系三年級

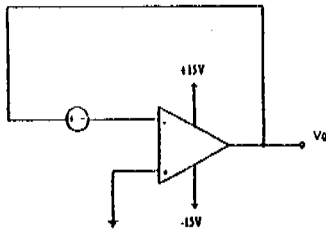
科目：電子學

准帶項目請打「○」否則打「×」	
	簡單型計算機

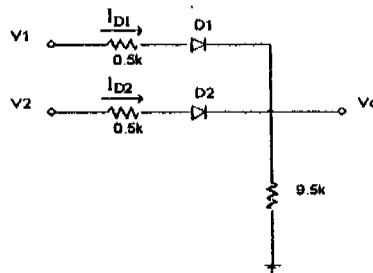
節次：7月14日第1節
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本試題雙面印刷

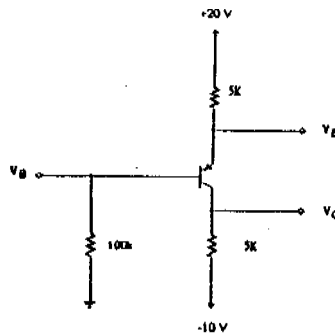
1. 20% The input voltage of the following op amp is 0.01mV . The input bias current is 0A , and the open loop gain is -200 . What is V_o ?



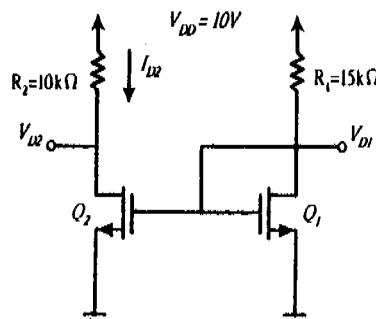
2. 20% The diodes in the following circuit have piecewise linear parameters of $V_r = 0.6\text{V}$ and $I_f = 0$. Determine the output voltage V_o , the diode currents I_{D1} , and I_{D2} for the following input conditions: $V_1 = 10\text{V}$ and $V_2 = 0\text{V}$.



3. 20% In the following circuit, assume $V_B = 1\text{V}$ and $V_E = 1.7\text{V}$. Solve α , β , and V_C ?



4. 20% Q_1 and Q_2 have the same parameters as follows: $V_t = 2\text{V}$, $\mu_n C_{OX} = 20\mu\text{A}/\text{V}^2$, $L = 10\mu\text{m}$, $W = 100\mu\text{m}$, and $\lambda = 0$. Find V_{D1} , V_{D2} , and I_{D2}



淡江大學九十三年學年度轉學生招生考試試題 83-2

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5. 20% A cascade amplifier is shown in the following figure, in which both MOSFETs are identical. The relevant parameters include the threshold voltage $V_{TH} = 1.2V$ and the conduction parameter $K=0.8mA/V^2$. The resistances of all capacitors are neglected. Find V_{GS1} , I_{DQ1} , g_m , and V_O/V_S .

