

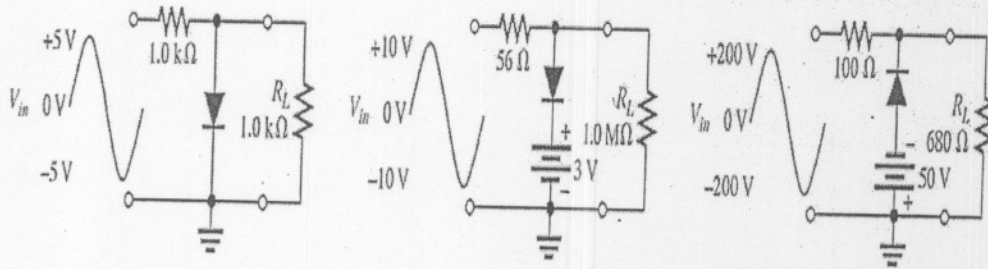
銘傳大學 96 學年度研究所碩士班招生考試
電子工程學系碩士班
第二節

電子學試題

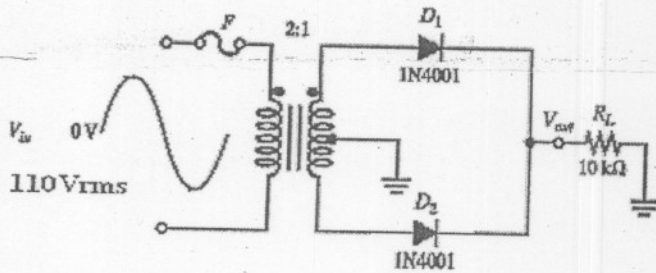
(第 / 頁共 2 頁)
(限用答案本作答)

可使用計算機
計算題(100%)

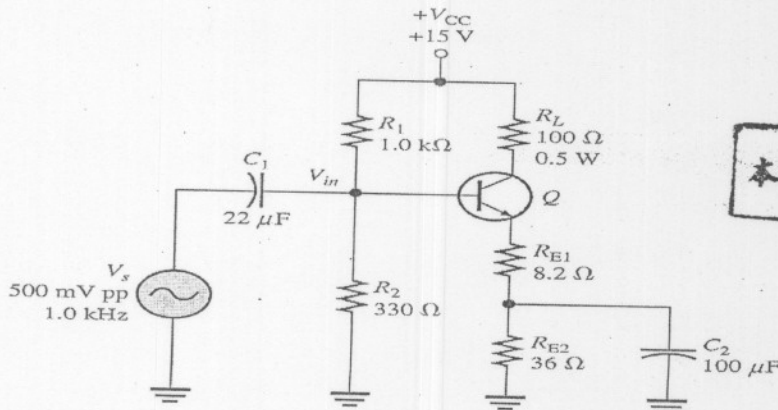
1. Drawing the R_L waveform for each circuit and show each peak value. Assume voltage drop is 0.7 when diode forward bias. (15%)



2. Show the voltage waveform across R_L . (5%) What minimum PIV (peak inverse voltage) rating must the diodes have? (5%)



3. (20%) A CE power amplifier in which the collector resistor serves also as the load resistor. Assume $\beta_{DC} = \beta_{ac} = 100$. (a) determine the dc Q point, $I_{CQ} = \underline{\hspace{2cm}}$, (b) $V_{CEQ} = \underline{\hspace{2cm}}$ (c) determine the voltage gain = $\underline{\hspace{2cm}}$ (d) power gain = $\underline{\hspace{2cm}}$



本試題係兩面印刷

4. (5%) What is the quality factor, Q , of a band-pass filter whose critical frequencies are 3.2 kHz and 3.9 kHz?

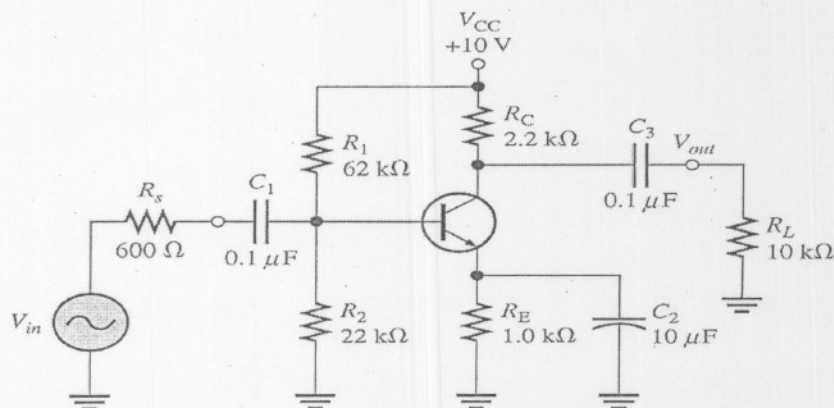
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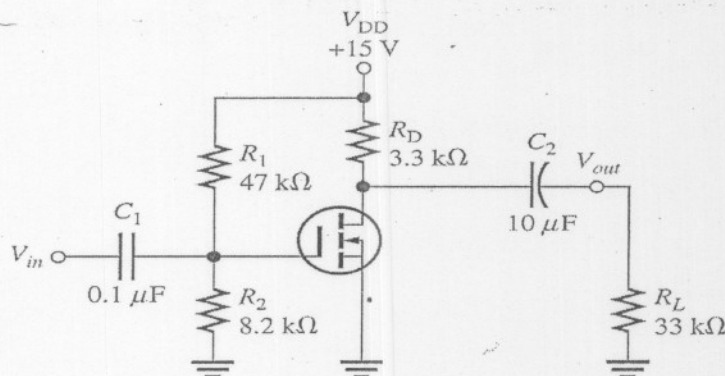
(第 2 頁共 2 頁)
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5. (20%) Determine the total low-frequency response of the BJT Amplifier. $\beta_{ac} = 100$ and $r_c' = 16\Omega$.

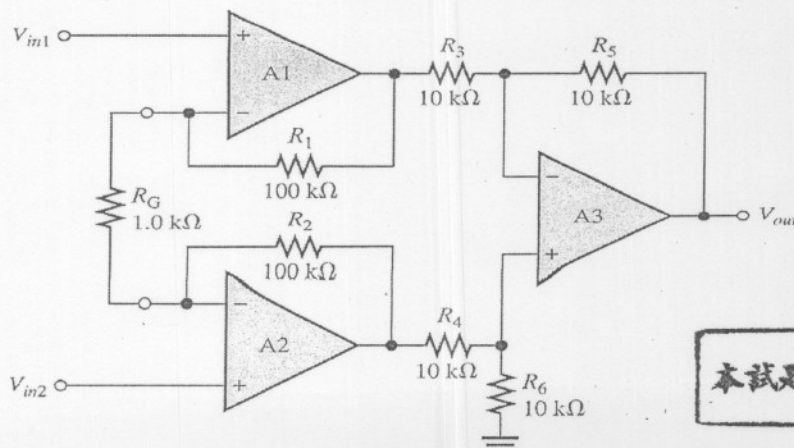
$f_{c(input)} = \underline{\hspace{2cm}}$; $f_{c(output)} = \underline{\hspace{2cm}}$; $f_{c(bypass)} = \underline{\hspace{2cm}}$; $A_v(\text{mid range}) = \underline{\hspace{2cm}}$ dB



6. (20%) A common-source amplifier is as shown. Find I_D and the ac output voltage. Assume $I_{D(on)} = 200\text{mA}$, at $V_{GS} = 4\text{V}$, $V_{GS(th)} = 2\text{V}$, and $g_m = 23\text{mS}$. $V_{in} = 25\text{mV}$.



7. (10%) For a instrumentation amplifier, determine the final output voltage=?. Assume $V_{in1} = 5\text{mV}$, $V_{in2} = 10\text{mV}$, and $V_{cm} = 225\text{mV}$.



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