AAST
Faculty of Engineering
CE-Department
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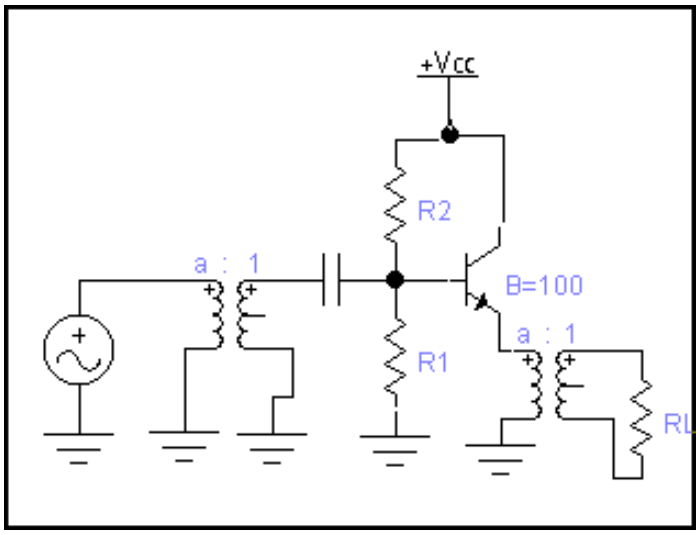
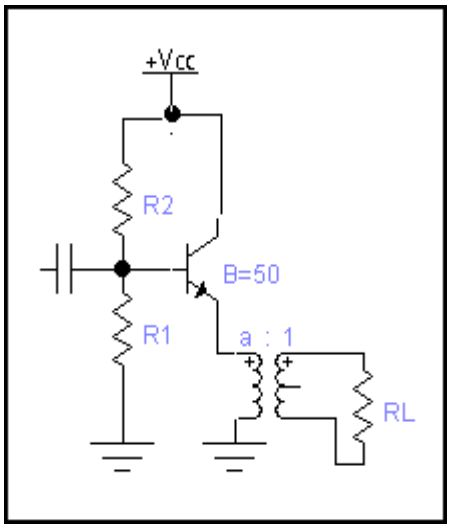
Sixth term
EC233: Electronic Circuits I
Year: 2004/2005
Sheet:3

1- Determine the overall current and voltage gains and the input resistance for the transformer coupled amplifier shown in figure. Use an npn transistor with a=4, R_1=2kΩ , R_2=4kΩ , V_{cc}=15V, β=100, R_L=500, neglect h_{ie} .



Fig(1)

2- Design a transformer-coupled EF amplifier to drive a 10Ω load with A_I=100 if V_{cc}=12V, V_{BE}=0.7V, the step down transformer turns ratio is 10 and β=50. Determine R_1 ,R_2 ,the power rating of the transistor, and the power dissipated in the load. Refer to the circuit shown in figure.



Fig(2)

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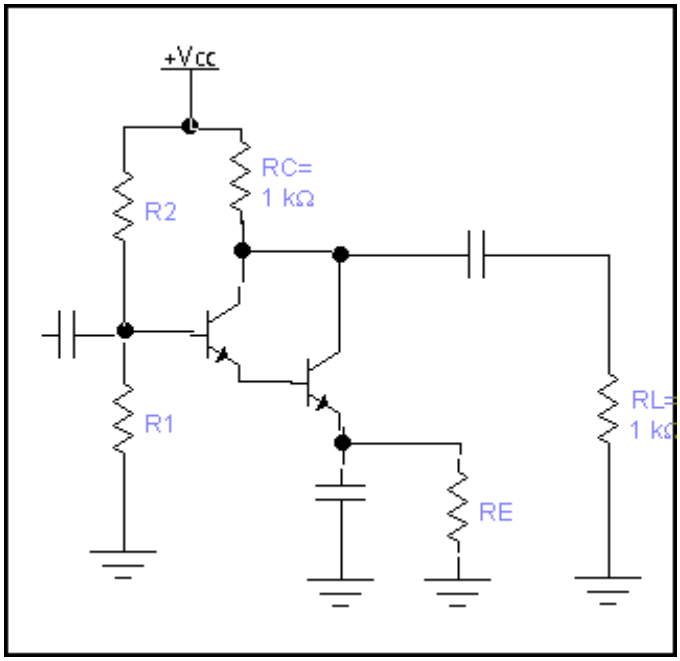
3- A class A transformer-coupled EF power amplifier must deliver an output 0.5w to an 8Ω speaker. What transformer's ratio is needed to provide this power if V_{cc}=18V ?.The transistor has β=100 and V_{BE}=0.7V.Assume zero resistance in the transformer. What transistor power rating is needed?.

4- Design a Darlington pair CE amplifier as shown in figure to provide an A_I of –4000 to a 1kΩ load. Design the amplifier for maximum output voltage swing and determine the value of the required maximum input voltage. Take β_1=100, β_2=200, V_{BE} for both transistors is 0.6V, V_{cc}=12V, R_c=1kΩ .



Fig(3)