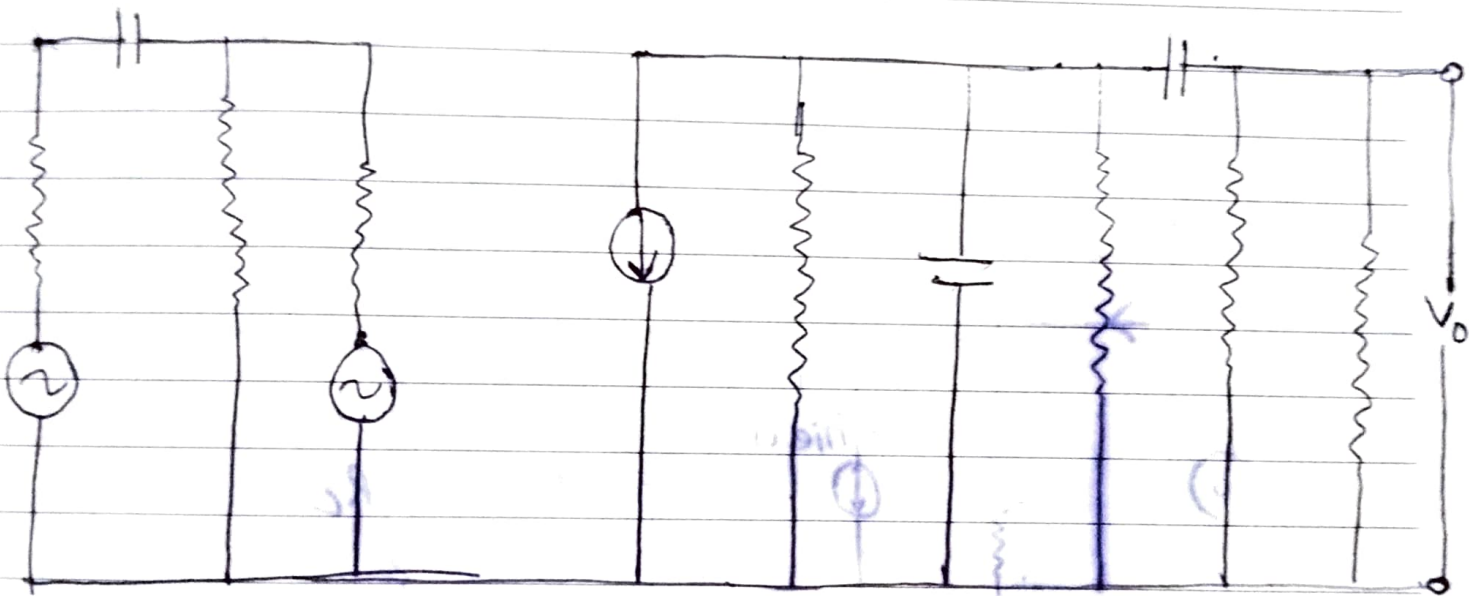


# MATHEMATICAL ANALYSIS OF R.C COUPLED AMPLIFIER

To get an expression for voltage let us assume that:

- ① Parallel combinations of CE and RE act as short and the transistors in a two stage RC coupled CE amplifier are assumed to be identical so that the input resistance  $h_{ie}$  of each is same and the forward current transfer ratio  $h_{fe}$  of each is also same. In



This circuit  $R_0$  is the parallel combination of  $R_1$  and  $R_2$ .  $C_{ef}$  is the resultant of the output shunt

2010	MARCH					2010	APRIL				
Mon	1	8	15	22	29	Mon	5	12	19	26	
Tue	2	9	16	23	30	Tue	6	13	20	27	
Wed	3	10	17	24	31	Wed	7	14	21	28	
Thu	4	11	18	25		Thu	1	8	15	22	
Fri	5	12	19	26		Fri	2	9	16	23	
Sat	6	13	20	27		Sat	3	10	17	24	
Sun	7	14	21	28		Sun	4	11	18	25	

capacitance of the first stage, input capacitance of next stage and stray and wiring capacitances. For further simplification we make the following assumptions.

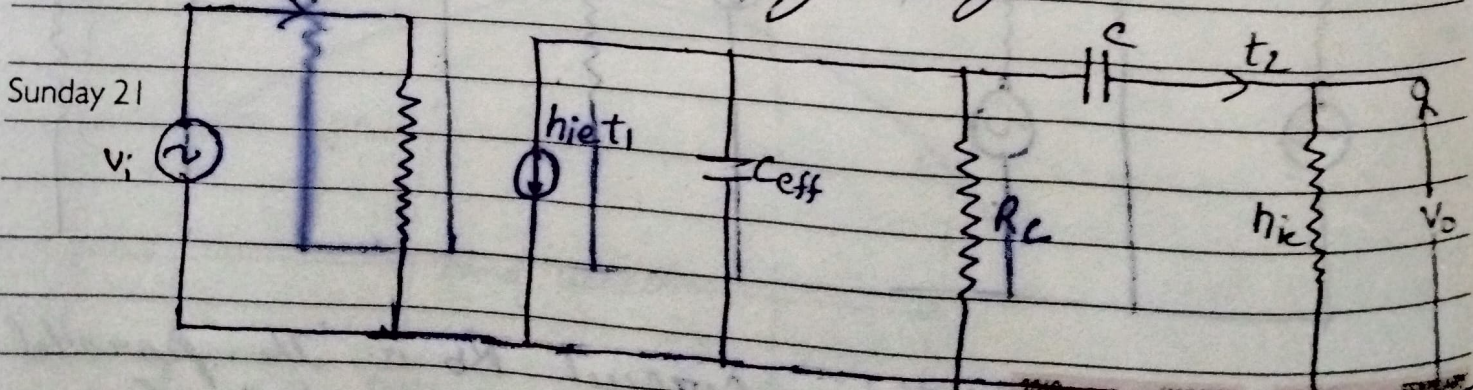
(i) The bias resistors  $R_1$  and  $R_2$  and hence  $R_0$  are usually large as compared to  $h_{ie}$  and hence negligible.

(ii) The reverse voltage ratio  $h_{re}$  of a transistor is small and hence voltage source  $h_{re} v_o$  may be neglected.

(iii) The output admittance  $h_{oe}$  is small hence negligible.

(iv) The reactance of  $C_1$  is small and hence negligible.

With these assumptions the simplified equivalent circuit of RC coupled amplifier is shown in fig. For the mathematical analysis we divide the entire frequency range into the three frequency ranges.



2014	JANUARY							FEBRUARY						
Mon	4	11	18	25	Mon	1	8	15	22	Tue	2	9	16	23
Tue	5	12	19	26	Tue	3	10	17	24	Wed	4	11	18	25
Wed	6	13	20	27	Wed	5	12	19	26	Thu	6	13	20	27
Thu	7	14	21	28	Thu	7	14	21	28	Fri	1	8	15	22
Fri	1	8	15	22	Fri	2	9	16	23	Sat	2	9	16	23
Sat	2	9	16	23	Sat	3	10	17	24	Sun	3	10	17	24