

Electronic Circuit Analysis & Design

Con. 3223-09.

VR-3765

(REVISED COURSE)

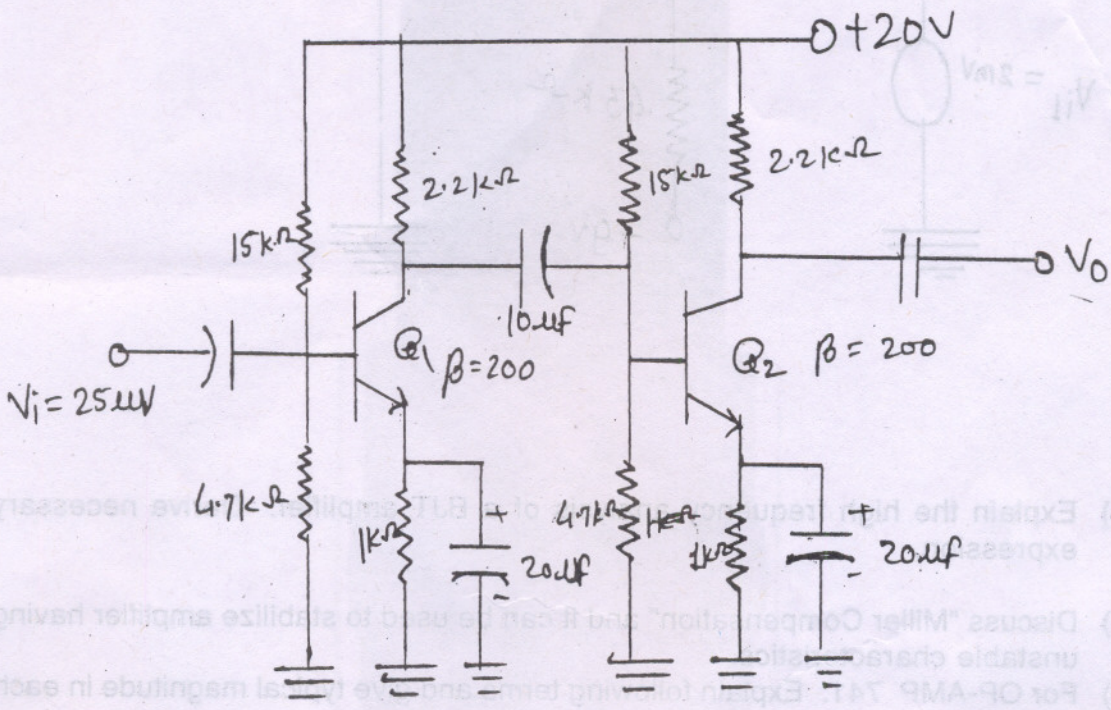
(3 Hours)

[Total Marks : 100

3 p.m. to 6 p.m.

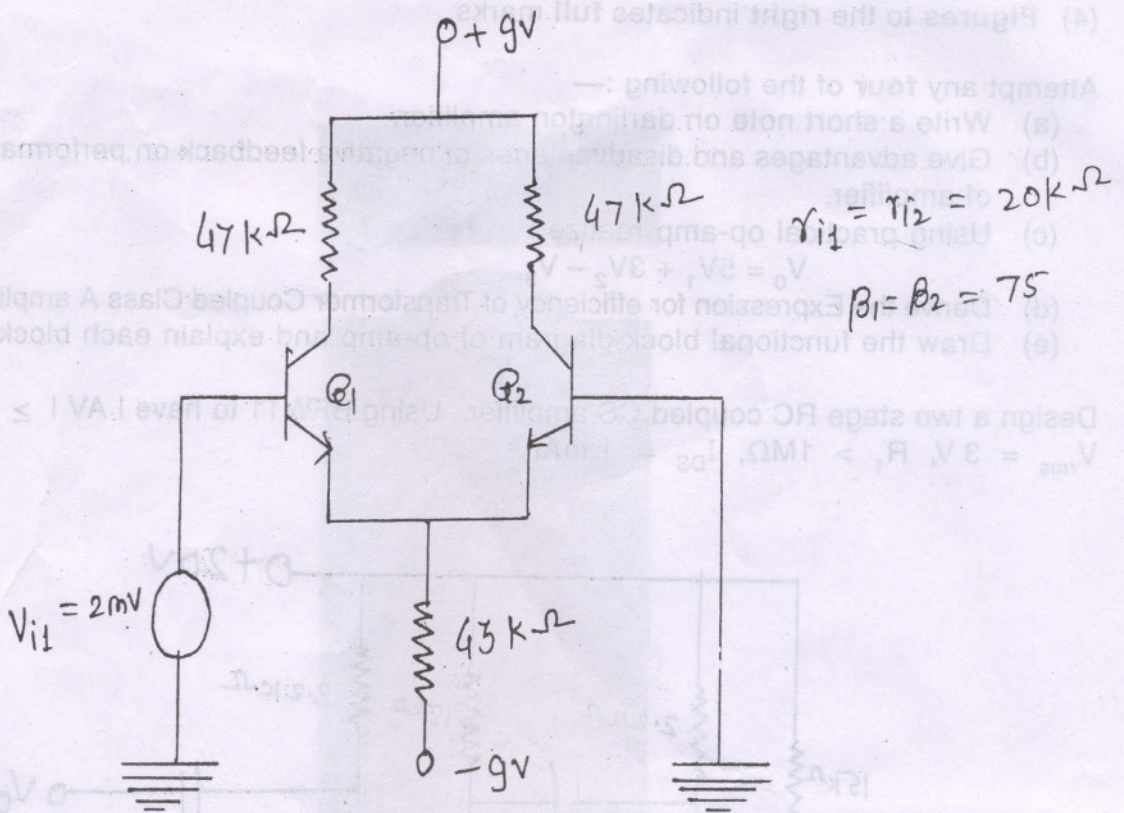
- N.B.:** (1) Question No. 1 is compulsory.
 (2) Attempt any **four** questions from Questions Nos. 2 to 7.
 (3) Assume **suitable** data wherever **necessary**.
 (4) **Figures** to the right indicates **full marks**.

- Attempt any **four** of the following :—
 - Write a short note on darlington amplifier. 5
 - Give advantages and disadvantages of negative feedback on performance of amplifier. 5
 - Using practical op-amp realize $V_o = 5V_1 + 3V_2 - V_3$. 5
 - Derive the Expression for efficiency of Transformer Coupled Class A amplifier. 5
 - Draw the functional block diagram of op-amp and explain each block. 5
- Design a two stage RC coupled CS amplifier. Using BFW11 to have $|AV| \geq 12$, $V_{rms} = 3V$, $R_1 > 1M\Omega$, $I_{DS} = 1mA$. 20
- 20



- Calculate the no load voltage gain and o/p voltage of the RC coupled transistor amplifier.
- Calculate the overall gain if a 10 kΩ load is applied to the second stage and compare to the result of first stage.
- Calculate the i/p Impedance of first stage and the o/p impedance of the second stage.

4. (a) Draw the circuit diagram of RC phase shift oscillator and explain it's working. 10
 Derive the necessary equations for frequency of oscillation and sustain oscillator.
- (b) Compare various types of -Ve feedback with neat block diagram. 10
5. (a) Calculate the single ended o/p voltage V_{o1} for the circuit. 10



- (b) Explain the high frequency analysis of a BJT amplifier. Derive necessary expression. 10
6. (a) Discuss "Miller Compensation" and it can be used to stabilize amplifier having unstable characteristics. 10
- (b) For OP-AMP 741. Explain following terms and give typical magnitude in each case. 10
- Input bias current
 - CMRR
 - Slew rate
 - O/P resistance
 - Power supply Rejection Ratio.
7. Write short notes on any three :— 20
- Concept of virtual ground in OP-AMP
 - Crystal Oscillator
 - OP-AMP as Schmitt trigger
 - Current mirror circuit.