

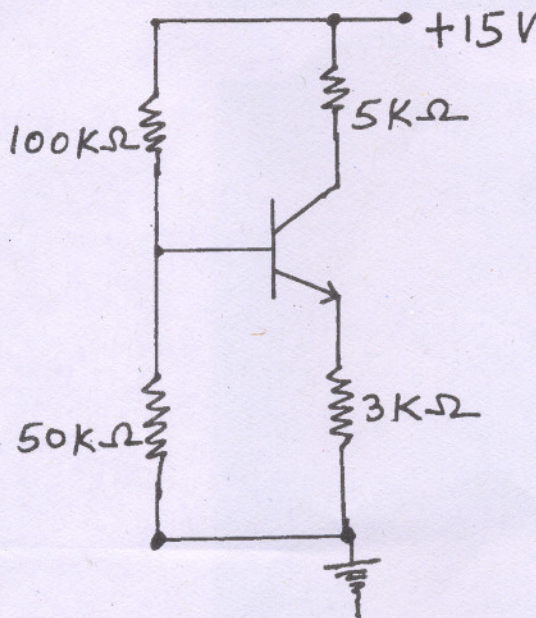
(REVISED COURSE)

(3 Hours)

[Total Marks : 100]

- N.B.** (1) Question No. 1 is **compulsory**.
 (2) Answer any **four** questions from remaining questions.
 (3) Assume **suitable** data if **necessary**.

1. (a) Determine the voltages at all nodes and the currents through all branches of **figure**. 12
 Assume $\beta = 100$, $V_{BE} = 0.7$ V.



- (b) Explain γ_e model for CB, CE configuration. 8
2. (a) Explain FET biasing arrangements for :— (i) zero current drift and (ii) Biasing against device variation. 10
 (b) Explain FET differential amplifier with basic current mirror circuit. 10
3. (a) Explain OP-AMP with block diagram. List ideal OP-AMP characteristics. 10
 (b) Explain frequency response of OP-AMP. Explain compensating network for OP-AMP. 10
4. (a) Explain the Instrumentation Amplifier using basic OP-AMP configuration. Derive the expression for V_o . 10
 (b) Explain OP-AMP as an practical integrator. 10
5. (a) Draw circuit diagram of wide band pass filter. Draw its frequency response characteristics. Give expressions for f_L and f_H . 10
 (b) Draw and explain phase-shift oscillator. Derive the expression for output frequency. 10
6. (a) Explain with the block diagram PWM IC voltage regulator. 10
 (b) Explain IC 555 Timer as monostable and astable multivibrator. 10
7. Write short notes on any **two** :— 20
- (a) Low and high voltage regulator using IC 723.
 (b) Monolithic A-D converter
 (c) Digital to Analog converter using R-2 R network
 (d) Schmitt Trigger.