**Department of Electrical Engineering**
**Indian Institute of Technology, Kanpur**

**EE 210** **END-SEM P1** **6.5.21**

Neglect base current, Early effect, body effect, CLM effect.
Data: For $Q_1$: $r_{E1} = 26\ \Omega$, $\beta_1 = 100$; for $M_2$: $g_{m2} = 2$ mA/V.

a) Determine the ac small-signal midband voltage gain ($v_0/v_s$). **2.5**

b) Using IVTC method, and the technique of total capacitance minimization, choose the values of $C_1$, $C_2$, and $C_3$, such that the tilt in the output $v_0$ for pulse excitation of frequency 1.57 kHz, does not exceed 2%. **9.5**