DEC 2008/JANU 2009

2008 VISVESVARAYA TECHNOLOGICAL NIVERSITY

B.E/B.TECH II I SEMESTER DEGREE EXAMINATION

ELECTRONICS AND COMMUNICATION ENGINEERING

ANALOG ELECTRONIC CIRCUIT

TIME 3 HOUR
MARK 80

ANSWER ANY ALL QUESTION

MARK [16*5=80]

1 a. Explain low frequency response of BJT amplifier and give expression for lower cut-off frequency due to CQ, CE and Cs.

b. Obtain expression for miller effect input and miller effect output capacitance. (10 Marks)

2. a. With necessary equivalent diagram obtain the expression for Zjn, Av, Z0 for a Darlington Emitter follower.

b. What are the effects of negative feedback?

c. Obtain expression for Zm, Z0 for a voltage - series feedback.

3. a. What are the classification of Power Amplifiers based on the location of Q-pt? Also indicate the operating cycle in each case.

b. Prove that the maximum conversion efficiency in class-B power amplifier is 78.5%.

c. A power amplifier has harmonic distortions D2 = 0.15 D3 = 0.02, D4 = 0.01, the fundamental current IL = 4A and RL. = 80mhs.Calculate the total harmonic distortion,fundamental power and total power.

4. a. Explain characteristics of a quartz crystal. With a neat diagram explain the crystal oscillator in Parallel - resonant circuits.

b. Explain how a feedback circuit can be used as oscillator.

c. Calculate operating frequency of a BJT phase - Shift oscillator for R = 6kQ, C = 1500pF, Re = 18kQ. Determine minimum current gain of transistor required for sustained oscillations.

5. a. Define transconductance gm. Derive expression for gm.

b. A JFET has gm = 6mV at VGs = -IV. Find IDSS if pintch off voltage VP = -2.5V.

c. With necessary equivalent circuit obtain the expression for Av, Zm, Z0 for a fixed-biased JFET Amplifier.