2005-PUNJAB UNIVERSITY

B.TECH IV SEMESTER DEGREE EXAMINATION

ANALOG ELECTRONICS

(ELECTRONICS AND COMMUNICATION ENGINEERING)

TIME-3HOUR
MARKS-100

PART A[10*2=20 MARKS]

1. Draw the high frequency equivalent circuit of CE transition.

2. Why does RC coupling give constant gain over mid-frequency range?

3. Explain the difference between a voltage and power amplifier.

4. What is crossover distortion? Explain in brief.

5. Show that maximum collector efficiency of class a transformer coupled power amplifier is 50%.

6. Why is negative feedback employed in high gain amplifiers?

7. What are practical applications of emitter follower?

8. Why is crystal oscillator used in radio transmitter?

9. Why is –ve feedback provided in Wein-bridge oscillator?

10. How does zener diode maintain constant voltage across load in the breakdown region?

PART B[10*8=80 MARKS]

2. Explain hybrid pi CE transistor model in detail.

3. Explain the push-pull amplifier circuit in detail with a neat diagram.

4. The gain and distortion of an amplifier are 150 and 5% respectively without feedback. If the stage has 10% of its output voltage applied as negative feedback, find the distortion of the amplifier with feedback.

5. A transformer coupling is used in the final stage of a multistage amplifier. If the output impedance of transistor is 1 k O, find the turn ratio of the transformer so that maximum power is transferred to the load.

6. Explain a current shunt feedback circuit and perform a suitable analysis.

7. What do you understand by class A, Class B and class C power amplifier? Define and explain the following terms as applied to power amplifiers:

(a) Collector efficiency

(b) Distortion

(c) Power dissipation capability

8 (a) A zener regulator has Vz=15V.The input voltage may vary from 22 V to 40 V and load current from 20 to 100 mA. To hold load voltage constant under all conditions, what should be the value of series resistance?

(b) Explain the working of a Colpitts oscillator with a neat diagram.

9. (a) Derive an expression for the gain of negative voltage feedback amplifier.

(b) A multistage amplifier consists of three stages. The voltage gain of stages are 60, 100 and 160 Calculate the overall