Code No. 11255

FACULTY OF ENGINEERING

B.E. 2/4 (E & EE/Inst.) II Semester (Main) Examination, April/May–2007

ELECTRONIC ENGINEERING—II

Time : Three Hours] [Maximum Marks : 75

Note :— Answer **ALL** questions of Part-A.

Answer **FIVE** questions from Part-B.

PART—A

(Marks : 25)

1. Explain the advantages of negative feedback in amplifiers.
2. Draw the current series feedback amplifier and obtain an expression for its Transconductance gain.
3. In Hartely oscillator, $L_1 = 0{\cdot}10$ mH, $L_2 = 0{\cdot}2$ mH, $C = 0{\cdot}01$ μF. Find the frequency of oscillation.
4. Draw the circuit of R-C phase shift oscillator using FET.
5. The open loop voltage gain of a voltage-series feedback amplifier is 550, the feedback ratio is 0·02, input resistance is 1·1 kΩ and output resistance is 19 kΩ. Calculate the gain A_{vf}, R_{if} and R_{of}.
6. What are the merits and demerits of push-pull amplifiers ?
7. Define the following :—
   (i) Input offset current and input offset voltage,
   (ii) Slew Rate.
8. Class A transformer coupled power amplifier has a V_{CC} of 20 V, load resistance is 10 Ω and a turns ratio of 20. Find the amplifier efficiency.
9. Draw the positive peak clipping circuit using diode and explain the operation.
10. Give the classification of power amplifiers and explain.

PART—B

(Marks : 5×10=50)

11. (a) Obtain the expressions for R_i and R_o for the following :

    (i) Current series feedback amplifier

    (ii) Current shunt feedback amplifier.

    (b) The open loop gain of the feedback amplifier is 600. Its feedback ratio is 0·1. If the open loop gain is increased by 10%. Find out the change in the feedback gain.

12. (a) Draw the circuit of crystal controlled oscillator and explain the principle of operation. Obtain an expression for the series resonant frequency of the same.

    (b) Calculate the range of frequencies of oscillation of the crystal, if the equivalent circuit parameters are R = 2 kΩ, L = 2 H, C_s = 0·01 PF and C_m = 10 PF, C_{load} = 0·05 PF.

13. (a) Explain the drift compensation techniques in detail.

    (b) Draw the circuit of Emitter coupled differential amplifier and explain the operation.

14. (a) Explain distortion in power amplifiers. Obtain an expression for the second harmonic distortion in power amplifiers.

    (b) If the output waveform of a power amplifier is constituted by V_{CE} (max) = 18 V, V_{CE} (min) = 2 V and V_Q = 9 V, find the second harmonic distortion.

15. Obtain the expressions for the following :—

    (a) Response of the low pass circuit to a pulse input

    (b) Response of the high pass circuit to a square input.

16. (a) Draw the circuit for Integrator using diode and explain the operation.

    (b) Draw the circuit for RC differentiator and obtain condition for good differentiation.

17. Write short notes on the following :—

    (i) Clamping circuits

    (ii) Analysis of a simple feedback amplifier

    (iii) Complementary Symmetry in push-pull amplifiers.