

**FACULTY OF ENGINEERING**

**B.E. 2/4 (ECE) II – Semester (Old) Examination, May / June 2016**

**Subject: Analog Electronic Circuits**

**Time: 3 Hours**

**Max.Marks: 75**

**Note: Answer all questions from Part A. Answer any five questions from Part B.**

**PART – A (25 Marks)**

- 1 Write about classification of amplifiers.
- 2 Draw high frequency equivalent circuit of FET and explain.
- 3 What are the characteristics of negative feedback in amplifiers?
- 4 What is the effect of negative feedback on input and output resistances of transconductance amplifier?
- 5 State and explain Barkhausen criterion for oscillators.
- 6 Compare RC and LC oscillators.
- 7 Find efficiency of class-A audio power amplifier.
- 8 What is class-D operating – Explain?
- 9 What are the requirements of RF voltage amplifiers?
- 10 What are the advantages of push-pull power amplifiers?

**PART – B (5x10 = 50 Marks)**

- 11 Derive expressions for midband gain and bandwidth of two stage RC coupled FET amplifier.
- 12 For a single stage voltage shunt feedback amplifier it  $R_c = 2 \text{ k ohm}$ ,  $R_e = 1 \text{ k ohm}$ ,  $R_f = 100 \text{ k ohm}$ ,  $R_s = 1 \text{ k ohm}$  and  $h_{fe} = 50$ , Calculate  $R_{if}$  and  $R_{vst}$ .
- 13 For RC phase shift FET oscillator, explain its operation and derive expressions for frequency of oscillations and condition of oscillations.
- 14 Explain with circuit the operation of class-B push-pull audio power amplifier and find efficiency.
- 15 Derive expressions for gain at resonance and bandwidth of single tuned RF voltage amplifier.
- 16 Derive midband gain and lower cutoff frequency and upper cutoff frequency for transformer coupled BJT amplifier.
- 17 Write short notes on:
  - a) Transistorized series regulator
  - b) Unilateralisation in RF amplifiers
  - c) Local versus global feedback.

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