

**II B. Tech II Semester Supplementary Examinations, Nov/Dec-2016**  
**ELECTRONIC CIRCUIT ANALYSIS**

(Com. to ECE, EIE)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
 2. Answer **ALL** the question in **Part-A**  
 3. Answer any **THREE** Questions from **Part-B**

**PART -A**

1. a) What is the expression for harmonic distortion in tuned amplifiers? (4M)
- b) Which configuration is the best in cascade for an output stage and for an intermediate stage? (4M)
- c) Calculate the junction to ambient thermal resistance for a device dissipating 600 mW into an ambient of 60°C and operating at a junction temperature of 120°C. (4M)
- d) Explain the significance of the gain bandwidth product. (4M)
- e) What are the different types of Tuned Amplifiers and explain various areas of applications. (3M)
- f) Explain the limitations of RC phase shift oscillator. (3M)

**PART -B**

2. a) Derive the expression for  $f_T$  of a transistor. (8M)
- b) Derive an expression for Voltage gain, input resistance, output resistance of a source follower at high frequencies. (8M)
3. a) What are different types of distortions possible in amplifiers? (8M)
- b) Discuss about effect of  $C_b$  on frequency response of RC coupled amplifier. (8M)
4. a) What are various basic amplifiers used in a single feedback amplifier circuit and explain them. (8M)
- b) Using Linear analysis and negative feedback circuit analyze common collector circuit. (8M)
5. a) Derive the expression for frequency of oscillation and condition for sustained oscillation of a Hartley oscillator. (8M)
- b) Draw Wien bridge oscillator using BJT and show that the gain must be at least 3 for the oscillations to occur (8M)
6. a) A single transistor is operating as an ideal class B amplifier with a 10-K load. A dc meter in the collector circuit reads 8mA. How much signal power is delivered to the load? (8M)
- b) Explain the operation of a class A push-pull power amplifier and list out its advantages and disadvantages. (8M)
7. a) Draw the circuit for BJT tuned class *B/C* amplifier. Explain its working (8M)
- b) What is a stagger tuned amplifier? Explain its advantages and disadvantages. (8M)

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