

II B. Tech II Semester Supplementary Examinations, November - 2018
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 **FOUR** Questions from **Part-B**
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PART -A

1. a) Explain why RC Phase shift oscillators are not used at high frequencies. (3M)
- b) Which configuration is the best in cascade for an output stage and for an intermediate stage? (2M)
- c) Explain characteristics of negative feedback amplifiers. (2M)
- d) Derive the expression for overall gain of a negative feedback circuit. (2M)
- e) Derive the expression for harmonic distortion. (2M)
- f) Differentiate staggered tuned amplifiers and wideband amplifiers. (3M)

PART -B

2. a) Find the voltage gain, input and output resistances of a emitter follower at high frequencies. (14M)
3. a) Differentiate between direct and capacitive coupling of multiple stages of amplifiers. With the help of a neat circuit diagram, describe the working of a cascade amplifier. (7M)
- b) Draw the circuit diagram, equivalent circuit of a Darlington pair and derive expressions for overall voltage gain and input impedance. (7M)
4. a) An amplifier has a gain of 50 with negative feedback. For a specified output voltage, if the input required is 0.1V without feedback and 0.8V with feedback, Compute β and open loop gain. (7M)
- b) Through the block schematics, show four types of negative feedback in amplifiers. (7M)
5. a) Derive the condition for oscillations? Discuss. (7M)
- b) Draw the RC-phase shift oscillator and derive the condition for oscillations. (7M)
6. a) Write short notes on Thermal stability and Heat sinks. (7M)
- b) $V_{CE(max)}=15V, V_{CE(min)}=1V$, find the overall efficiency for (i) series -fed load (ii) transformer-coupled load (7M)
7. a) Draw the diagram of a capacitance coupled tuned amplifier and derive an expression for its quality factor. (7M)
- b) Show that Bandwidth decreases with cascading of single tuned amplifiers. (7M)

