Code No: R22043 $\boxed{R10}$ $\boxed{SET - 1}$

II B. Tech II Semester Supplementary Examinations, April/May-2017
ELECTRONIC CIRCUIT ANALYSIS
(Com. to ECE, EIE)

Time: 3 hours   Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) What is amplifier, Draw the circuit diagram of a CE amplifier and explain its working   (8M)
   b) Draw the AC equivalent circuit of a CE amplifier with un by passed emitter resistor using h-parameter model and derive the equations for input impedance, output impedance, voltage gain and current gain   (7M)

2. a) An amplifier with stage gain 200 is provided with negative feedback of feedback ratio0.05.Find the new gain   (8M)
   b) Compare the negative feedback with positive feedback   (7M)

3. a) Draw the circuit of Hartley oscillator and explain its working. Derive the expressions for frequency of oscillation and condition for starting of oscillation   (8M)
   b) In an Hartley oscillator ,if $L_1=0.2mH, L_2=0.3mH$ and $C=0.003$ µF, calculate the frequency of its oscillation   (7M)

4. a) What are multistage amplifiers, discuss briefly the choice of transistor configuration in a cascade amplifier   (8M)
   b) What is a Darlington transistor, what are its salient features   (7M)

5. Define Hybrid-π model. Draw and derive the expressions for different elements of the Hybrid $-\pi$ model (i) Determination of Trans Conductance   (ii) Determination of input conductance (iii) Determination of feedback conductance (iv) Determination of output conductance   (15M)

6. a) What is Class A amplifier ,Derive the expression for maximum value of efficiency   (8M)
   b) $V_{CE(max)}=15V, V_{CE(min)}=1V$,find the overall efficiency for (i) series –fed load (ii) transformer-coupled load   (7M)

7. Derive the expressions for 3dB bandwidth of
   (i) Capacitance coupled single tuned amplifiers (ii) Double tuned amplifiers   (15M)

8. a) Explain about line regulation and load regulation in a regulator   (8M)
   b) Design a series voltage regulator to provide an output voltage of 30V and supply a load current up to 1A,the input voltage varies from 40 to 50V   (7M)