Code No: RT22041 **R13** SET - 1

II B. Tech II Semester Supplementary Examinations, April-2018
ELECTRONICS CIRCUIT ANALYSIS
(Com. to ECE, EIE)

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**

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PART –A

1. a) Derive Trance conductance ($g_{m)}$,Base spread resistance ($r_{bb'}$) ? (4M)
   b) List the types of coupling schemes? (3M)
   c) What is the effect of –ve feedback on the input impedance of an amplifier (4M)
   d) State Barkhausen's criteria (3M)
   e) What is crossover distortion? Explain. (4M)
   f) What is the effect of cascading in tuned amplifier? (4M)

PART -B

2. a) Draw approximate equivalent hybrid Π model for the calculation of the short circuit CE current gain and derive the same. (8M)
   b) With hybrid π equivalent circuit, derive the expressions for hybrid conductances. (8M)

3. a) Explain different methods used for coupling multistage amplifiers with their frequency response. (8M)
   b) Five identical stages are couplrd,each amplifier having f_2=100KHz.Determine the overall upper cutt0off frequency for the five stages. (8M)

4. a) Explain different negative feedback topologies with neat diagrams. (10M)
   b) Draw the circuit diagram of a voltage shunt feedback using BJT and derive expression for voltage gain with feedback (6M)

5. a) Draw the RC phase shift oscillator circuit and derive the expression for frequency of oscillations. (8M)
   b) Explain the operation of Hartley Oscillator with neat diagram. (8M)

6. a) Prove that in class A power amplifier if the distortion is 10% then the power given to the load increased by 1% (8M)
   b) A Class B push-pull amplifier has Vcc=50V, the collector voltage swing from Vcc down to 10V with input signal. If the transistor used as maximum power dissipation rating of 20W.Calculate i)The load presented by the output transformer ii)Power output iii) D.C power input iv)Efficiency of collector circuit. (8M)

7. a) With neat circuit diagram explain the working of double tuned amplifier (8M)
   b) What are the advantages of double tuned amplifier? Derive the expression for I_2 maximum (8M)
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