

R09

Code No: 09A40402

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech II Year II Semester Examinations, November/December-2013

ELECTRONIC CIRCUIT ANALYSIS

(Common to ECE, EIE, ETM, ICE, ECOMPE)

Time: 3 hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

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- 1.a) What is effect of bypass capacitor in a RC coupled amplifier?
- b) The hybrid parameters for a transistor used in CE configuration are  $h_{ie}=1K\Omega$ ,  $h_{fe}=150$ ,  $h_{re}=25\times 10^{-6}\Omega$ . The transistor has a load resistance of  $10k\Omega$  in the collector and is supplied from a signal source of resistance  $5K\Omega$ . Compute the values of input impedance, output impedance, current gain and voltage gain. [8+7]
- 2.a) Draw the Circuit diagram of Darlington pair amplifier and explain how it gives high input impedance?
- b) Derive the expression for current gain of transformer coupled amplifier. [8+7]
- 3.a) Draw the hybrid equivalent circuit of Source follower and derive the expression for current gain.
- b) What are the advantages of Cascode Folded amplifier? [9+6]
- 4.a) Draw the emitter follower  $\pi$ -model and explain the significance of each term.
- b) Why the gain band width product is constant in an amplifiers? [8+7]
- 5.a) Draw the four topologies of Feedback amplifier and derive the current gain for all.
- b) What are the advantages of negative feedback amplifier? [9+6]
- 6.a) Draw the circuit diagram of RC phase shift oscillator and explain its working.
- b) Derive the condition for frequency of oscillations in an Colpitts' Oscillator. [8+7]
- 7.a) Explain the operation of class B pushpull amplifier and show how even harmonics are eliminated.
- b) A single-ended class-A amplifier has a transformer coupled load of  $8\Omega$ . If the transformer turns ratio ( $N1/N2$ ) is 10, find the maximum power output delivered to the load. Take the zero signal collector current of  $500mA$ . [8+7]
- 8.a) Explain the principle of operation of single tuned amplifier using capacitive coupling.
- b) Explain the unilateralisation and mis-match technique of stabilization in tuned amplifiers. [8+7]

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