

HALL TICKET NO :

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BAPATLA ENGINEERING COLLEGE::BAPATLA

(AUTONOMOUS)

ELECTRONICS AND COMMUNICATION ENGINEERING

V SEMESTER MODEL PAPER

ELECTRONIC CIRCUITS-II

Time: Three Hours

Max Marks: 60

Answer Question No.1 Compulsorily. (12X1=12M)

Answer **ONE** question from each unit.(4X12=48M)

1)

12x 1M = 12M

- Write relation between f_T , f_H in emitter follower.
- How to measure f_T at an appreciably low frequency?
- What is the physical origin of $r_{b'c}$, r_{ce} ?
- What is the purpose of pass transistor?
- What is principal of operation of shunt regulator?
- List the advantages of nickel cadmium over lead acid cell.
- Define dominant pole frequency f_H .
- How is the tilt related to the low 3-dB frequency f_L ?
- Under what conditions does an amplifier preserve the form of the input signal?
- What do you mean by tuned amplifiers?
- Define Q factor of resonant circuit.
- What is synchronous tuned amplifier?

UNIT – I

2)

- Draw the miller equivalent circuit for CE amplifier with resistive load and obtain bandwidth. (6M)
- Given the following transistor measurements made at $I_C = 5$ mA, $V_{CE} = 10$ V and at room temperature. $h_{ie} = 600 \Omega$, $h_{fe} = 100$, $|A_{ie}| = 10$ at 10 MHz, $C_c = 3$ pF find f_β , f_T , C_e , $r_{b'e}$ and $r_{bb'}$. (6M)

(OR)

3)

- Derive the expression for gain and bandwidth of high frequency emitter follower using miller theorem and relate f_T and f_H . (6M)
- Consider hybrid-P circuit at low frequency; obtain miller's gain K without omitting any element. Consider load resistance is R_L . (6M)

UNIT - II

4)

- Draw CD amplifier, obtain expression for voltage gain and output impedance at high frequencies and compare with CS. (6M)
- Draw the generalized block diagram for voltage series regulator, explain improvised voltage series regulator with neat sketch. (6M)

(OR)

5)

- What is the purpose of protection techniques? Explain fold back current limiting circuit with neat sketch. (6M)
- What is an uninterruptable power supply? What is meant by 'On-line' and 'Off-line' UPS? (6M)

UNIT - III

- 6) a) Explain the effect of emitter bypass capacitor on low frequency response of CE amplifier. (6M)
 b) Three identical non interacting amplifier stages in cascade have an overall gain of 1dB down at 30 Hz compare to midband calculate lower cutoff frequency of individual stages. (6M)

(OR)

- 7)
 a) Sketch the high frequency step response of low- pass single pole amplifier and derive the relation between t_r and f_H . (6M)
 b) What is the origin of distortion in amplifier, Explain briefly various types of distortion. (6M)

UNIT - IV

- 8)
 a) Derive the expression for gain of Double tuned transformer coupled amplifier with neat sketch. (8M)
 b) Explain how Impedance Varies in parallel tuned circuit at frequencies Near Resonance. (4M)

(OR)

- 9)
 a) Draw the circuit diagram of tuned primary amplifier, derive expression for gain at resonance frequency. (6M)
 b) Differentiate wideband and narrow band amplifiers and explain about parallel resonant circuit. (6M)