

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad**II B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER-2019**Subject: **ELECTRONIC CIRCUITS**Branch: **EEE****Time: 3 hours****Max. Marks: 75****Answer ANY FIVE questions of the following****5x15M= 75M**

1. a) Comparison of CE, CB, CC amplifiers with different parameters (5M)
b) Derive the expression for gain of CS amplifier with resistive load. (10M)
2. a) Define miller's theorem and explain its importance. (3M)
b) Explain square wave testing (4M)
c) For the High-Frequency Amplifier Response of the circuit for the BJT amplifier in fig is shown. Convert the circuit into its High-frequency equivalent circuit after applying Miller's theorem and Find $C_{in(miller)}$ and $C_{out(miller)}$, $\beta = 125$, $C_{be} = 20 \text{ pF}$, and $C_{bc} = 2.4 \text{ pF}$ (8M)

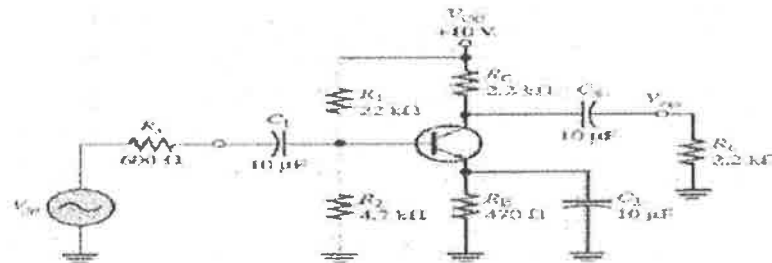


Fig. RC Coupled amplifier

3. a) Explain the effect of negative feedback on Output Resistance for Voltage shunt and Current series feedback amplifiers. (8M)
b) What is the use of feedback and why do we use negative feedback in amplifiers. (4M)
c) Compare R_i and R_o of voltage and current amplifiers. (3M)
4. a) Derive the expression for frequency of oscillation of RC phase shift oscillator. (10M)
b) A Wein bridge oscillator has a frequency of 500 kHz. If the value of C is 100PF, determine the value of 'R' (5M)
5. a) Explain the operation of Class AB amplifier. (8M)
b) What is Cross Over distortion? Explain. (7M)

6. a) for the clipper circuit shown in fig, write the transfer characteristic plot (Assume diode as Ideal)

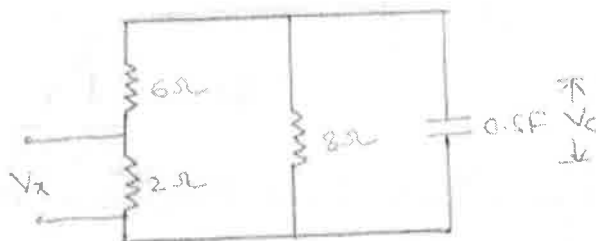
(8M)



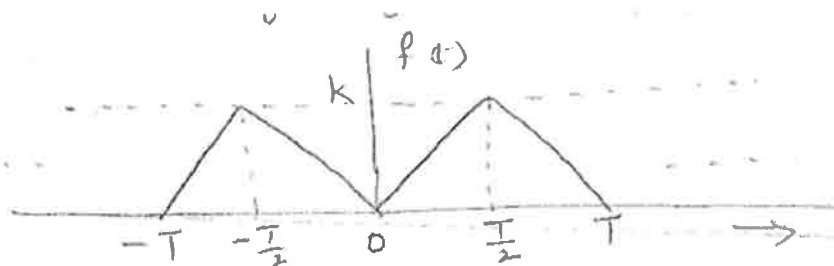
- b) Explain the operation of negative peak clipper and draw its output waveform. (7M)
7. a) Explain the operation of Punch through Breakdown Mechanism in transistor. [8M]
b) Explain the switching times of a transistor. (7M)
8. a) Explain the working of schmitt trigger using transistors. [8M]
b) Derive the expression for the pulse-width of monostable multivibrator. [7M]

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1. a) Derive the relation between line and phase voltages and currents in a 3-phase balanced delta connected AC system.
- b) A 400V, 50Hz, 3-phase system supplies a load which has 100Ω between R and Y, $j100\Omega$ between Y and B, and $-j100\Omega$ between B and R, find (i) line currents for phase sequence RYB (ii) star connected balanced resistors for the same power.
2. a) A source free RC circuit shown in figure when initial value of voltage across the capacitor is 3V, find the value of capacitor voltage V_c , capacitor current I_c and voltage across 2 ohms resistor.

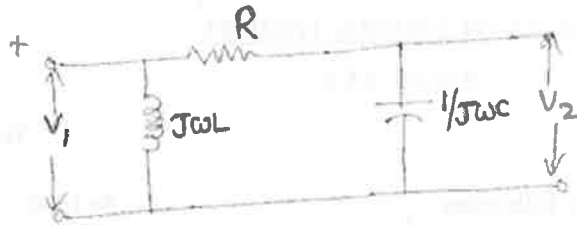


- b) What are the advantages of studying Transient responses in AC and DC circuits?
3. a) Derive impulse response of series RC network.
- b) Determine the Fourier series of the wave form shown in fig. Using Trigonometric series.

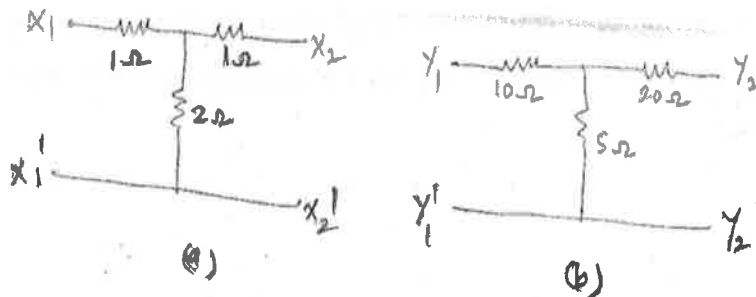


4. a) Briefly explain a transfer function. [5M]
- b) For the given network function, draw the pole zero diagram and hence obtain the domain response verify the result analytically. $V(S) = \frac{5(s+5)}{(s+2)(s+7)}$ [10M]

5. a) Explain ABCD parameters cascaded two port networks.
 b) Determine the transmission parameter of the network shown in Fig.



6. a) What type of parameters are suitable to describe series connection of Two-port Network and drive the expression for resulting parameters.
 b) Two networks shown in figures (a) and (b) are connected in series. Obtain the Z parameters of the combination. Also verify by direct calculation.



7. a) Design a low pass T-section filter having a cut-off frequency of 1.5 kHz to operate with a terminated load resistance of 600Ω . [8M]
 b) Explain briefly Band pass filters. [7M]
8. Derive transient response in series RLC circuit with sinusoidal excitation.