U.S.N.										

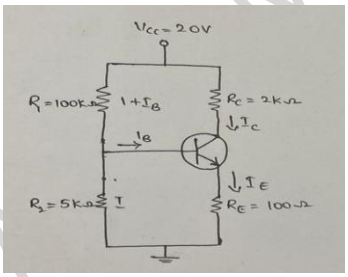
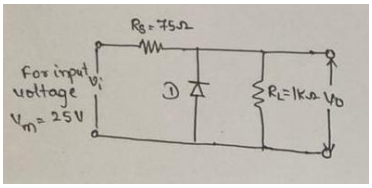
B.M.S. College of Engineering, Bengaluru-560019

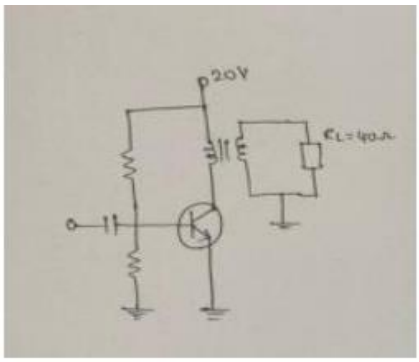
Autonomous Institute Affiliated to VTU

August 2024 Semester End Main Examinations

Programme: B.E. **Semester: IV**
Branch: Electrical and Electronics Engineering **Duration: 3 hrs.**
Course Code: 22EE4PCAEL **Max Marks: 100**
Course: Analog Electronic Circuits and LIC

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

		UNIT - I	CO	PO	Marks
1	a)	What do you mean by wave shaping circuits? Explain the working of basic series clipper circuit.	CO2	PO 1	**06**
	b)	For the circuit shown in figure, calculate IB, VCE, IC & stabilityfactor. Assume β=50, V_{BE}=0.2V.  Fig. 1.b	CO3	PO2	**08**
	c)	Mention the factors affecting the operating point?	CO2	PO1	**06**
		OR			
2	a)	Analyze the given circuit & sketch the nature of output voltagewaveforms.  Fig. 2.a	CO3	PO2	**08**
	b)	Draw and explain the operation of voltage divider bias circuit and derive the equation for stability factors.	CO3	PO2	**12**
		UNIT - II			
3	a)	With a neat block diagram explain the basic concept of feedback amplifier. List the advantages and disadvantages of feedback.	CO2	PO1	**06**

		b)	Derive equation for input and output resistance with feedback for voltage series and voltage shunt feedback circuits.	*CO2*	*PO1*	**08**
		c)	Explain the characteristics of Darlington pair?	*CO2*	*PO1*	**06**
			UNIT - III			
	4	a)	Explain the working of a class B push pull amplifier?	*CO2*	*PO1*	**06**
		b)	A class -A amplifier shown in figure, operates from V_{CC}=20v, draws a no-signal current of 5A and feeds a load of 40Ω through a step-up transformer of N_2/N_1=3.16. Find i. Whether the amplifier is properly matched for maximumpower transfer, ii. Maximum ac signal power output, iii. Maximum dc power input, iv. Conversion efficiency at maximum signal input.  Fig. 4.b	*CO3*	*PO2*	**08**
		c)	Explain drain characteristics of JFET.	*CO2*	*PO1*	**06**
			UNIT - IV			
	5	a)	Explain the operation of inverting and non-inverting amplifier using op-amp. Derive gain equation.	*CO3*	*PO1*	**08**
		b)	What are the advantages and disadvantages of active filters over passive filters.	*CO3*	*PO1*	**06**
		c)	Explain the factors affecting the performance of a regulator.	*CO4*	*PO1*	**06**
			OR			
	6	a)	Explain the operation of inverting summing amplifier. Derive the equation for the output voltage.	*CO2*	*PO1*	**06**
		b)	Briefly explain first order low pass Butterworth filter.	*CO4*	*PO2*	**06**
		c)	Briefly explain with the help of the schematic diagram working of LM317 IC regulator.	*CO4*	*PO2*	**08**
			UNIT - V			
	7	a)	With the help of neat circuit diagram, explain the operation of triangular waveform generator. Derive equation for frequency of oscillations.	*CO4*	*PO2*	**10**
		b)	Explain with neat circuit diagram & waveform the operation of inverting Schmitt trigger circuit. Design a Schmitt trigger for UTP=2.5V and LTP=1.0V. V_{sat}=12V & V_{ref}=1.9V	*CO4*	*PO2*	**10**

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