

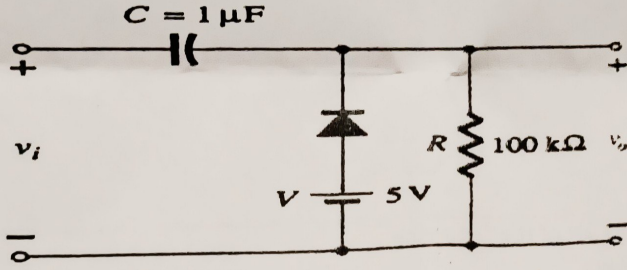
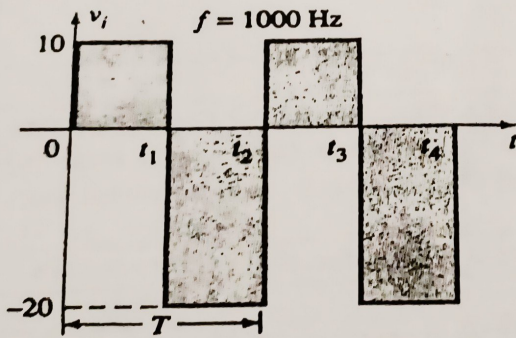
Subject Code: BEC 201

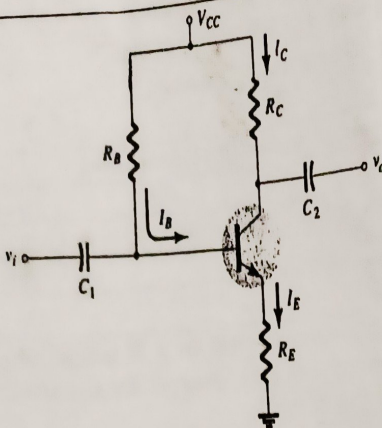
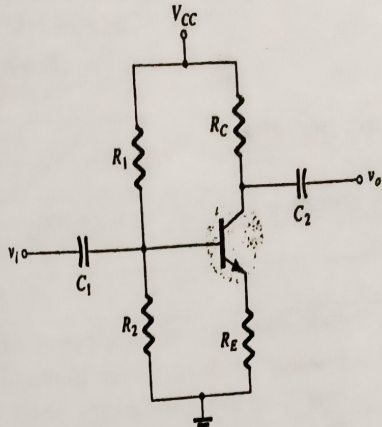
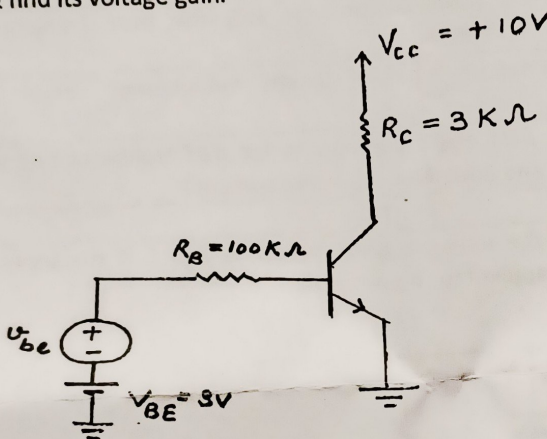
Subject: Analog Electronics

Maximum Marks : 60

Time : 3 Hours

Note: Q. 1 is compulsory. Attempt one question each from the Units I, II, III & IV.

Q1		2.5*8=20
(a)	Differentiate among types of capacitances present in a Si diode when it is reverse biased and forward biased. Comment on the change in capacitance level with increase in reverse-bias potential for the Si diode.	
(b)	Give principal of Zener diode and explain its usage as voltage regulator.	
(c)	Discuss the effect of temperature variation on operating point 'Q'.	
(d)	How can we graphically find out transconductance 'gm' from V-I characteristic curve.	
(e)	What is pinch-off voltage? How it is affected by variation in gate to source voltage in n-channel depletion type MOSFET?	
(f)	Give advantages of R-C coupled transistor amplifier over Transformer Coupled transistor amplifier.	
(g)	Describe the phenomenon "channel length modulation" versus "base width modulation".	
(h)	Why the terminology <i>field effect</i> appropriate for JFET transistor and why JFET has high input impedance and effectively zero gate current?	
UNIT-I		
Q2	<p>Determine the output v_o of the network given below in Fig. 1 if the input waveform v_i (given in Fig. 2) is applied to this network. (10)</p>  <p style="text-align: center;">Fig. 1</p>  <p style="text-align: center;">Fig. 2</p>	
Q3	Identify the types of biasing techniques applied in circuits given below in Fig. 3 and Fig. 4. Compare both these techniques for the thermal stability provided to circuit in terms of Stability 'S' factor. (10)	

			
	Fig. 3	Fig. 4	
UNIT-II			
Q4	<p>Analyze the circuit given in Fig. 5, using small signal modelling (SSM) in amplifiers & find its voltage gain.</p> 	(10)	
	Fig. 5		
Q5	<p>Write short notes on any two of the following :-</p> <ol style="list-style-type: none">Cascaded AmplifiersDarlington pairπ-Low frequency modelsCascode Amplifiers	(10)	
UNIT-III			
Q6	<p>What are different types of negative feedback topologies? Give comparative analysis of them for the parameters (i) Nonlinear Distortion (ii) Noise (iii) Bandwidth (iv) Input impedance (v) Output impedance. Give detailed block diagrams for all these topologies.</p>	(10)	
Q7	<p>Explain voltage and current operations of SCR and discuss its V-I characteristics.</p>	(10)	
UNIT-IV			
Q8	<p>Explain the working of n-channel JFET. What are the major differences between the collector characteristics of a BJT transistor and the drain characteristics of a JFET? Compare the units of each axis and the controlling variable. How does I_C react to increasing levels of I_B versus changes in I_D to increasing negative values of V_{GS}?</p>	(10)	
Q9	<p>Sketch a p-channel enhancement type MOSFET and explain its working with the help of gate and drain characteristics waveforms.</p>	(10)	