

Test: CLAT- 1

Course Code & Title: 18ECC201J – Analog Electronic Circuits

Year & Sem: II / IV

Date: 07-04-2022

Duration: 60 minutes

Max. Marks: 25

Course Articulation Matrix:

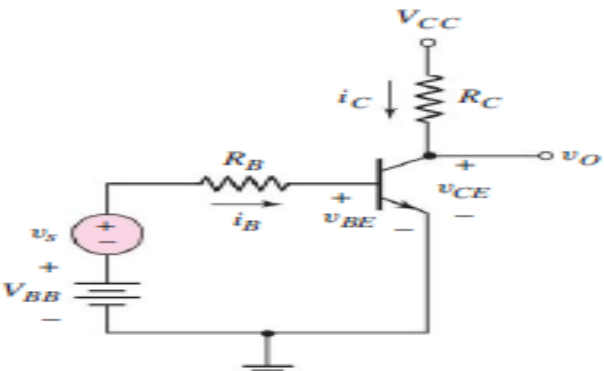
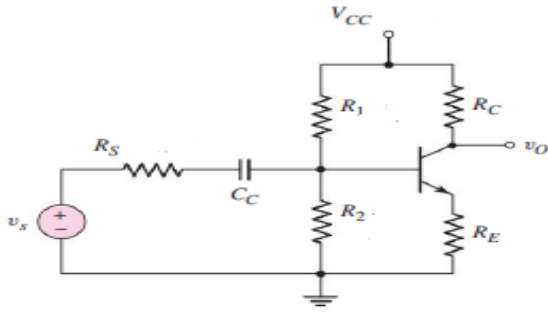
Course Articulation Matrix:		Program Outcomes (POs)														
18ECC201J - Analog Electronic Circuits		Graduate Attributes												PSO		
COs	Course Outcomes (COs)	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO-1	Analyze bipolar amplifier circuits and their frequency response.	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-
CO-2	Develop MOSFET amplifier circuits and their frequency response.	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-
CO-3	Compile various negative feedback amplifier and oscillator circuits.	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-
CO-4	Demonstrate the different classes of power amplifiers according to their performance characteristics.	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-
CO-5	Construct the basic circuit building blocks that are used in the design of IC amplifiers, namely current mirrors and sources.	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-
CO-6	Organize analog electronic circuits using discrete components to measure various analog circuits' performance.	-	-	3	-	-	-	-	-	2	-	-	-	3	1	-

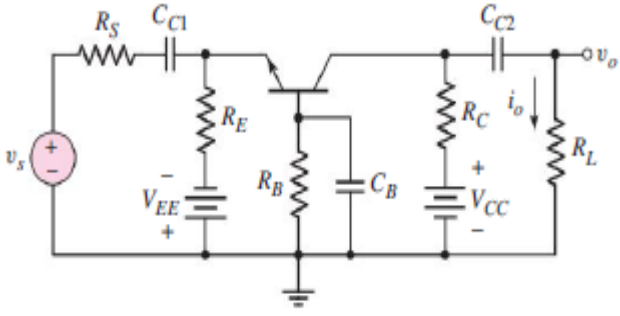
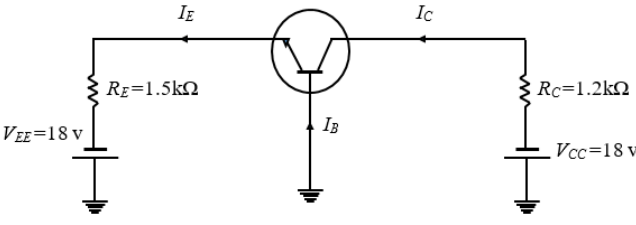
Part - A

(5 x 1 = 5 Marks)

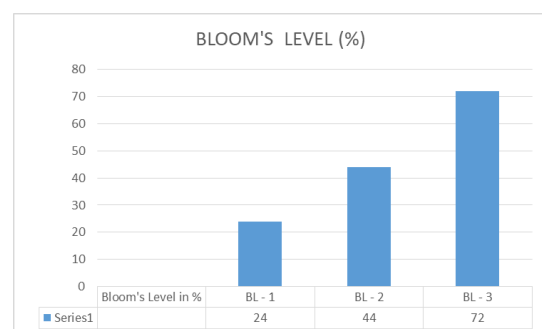
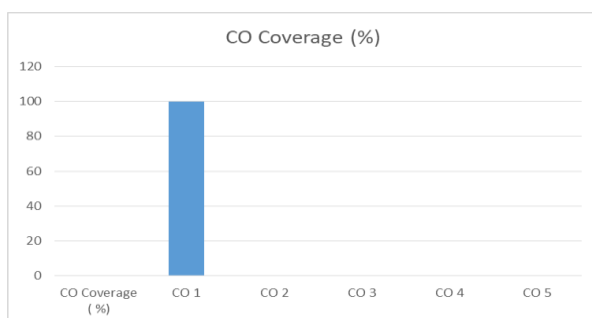
Instructions: Answer any 5

Q. No	Question	Marks	BL	CO	PO	PI Code
1	CE amplifier is mostly preferred in amplifier circuits because _____ a. of low output impedance b. of high output impedance c. it provides better voltage and current gain d. it has better Q-Point	1	1	1	1	
2	If the value of α is 0.9, then value of β is _____ a. 9 b. 0.9 c. 900 d. 90	1	2	1	2	
3	What is the current gain for a common-base configuration if, $I_E = 4.2$ mA and $I_C = 4.0$ mA? a. 16.8 b. 1.05 c. 0.2 d. 0.95	1	3	1	2	
4	In a voltage divider bias circuit R_1 is $4.7\text{ K}\Omega$, R_2 is 1500Ω , and V_{CC} is +18 V. then the voltage across the base resistance is _____ a. 8.7 V b. 4.35 V c. 2.9 V d. 0.7 V	1	3	1	3	

5	Which of these are incorrect about Darlington amplifier? a) High input resistance b) Low output impedance c) Unity voltage gain d) It is used as a current buffer	1	1	1	1	
<p align="center">Part – B (2 x 10 = 20 Marks) Instructions: Answer any TWO</p>						
6.a.	<p>Calculate the small signal voltage gain of the bipolar transistor circuit shown in Fig A. Assume the transistor and circuit parameters are ; $\beta = 100$, $V_{CC} = 20V$, $V_{BE} = 0.7$, $R_C = 6\text{ K}\Omega$, $R_B = 50\text{ K}\Omega$, and $V_{BB} = 1.2V$. $I_{CQ} = 1\text{ mA}$, and $V_{CEQ} = 6V$</p>  <p align="center">Fig A</p>	5	3	1	3	
6.b.	<p>Draw the equivalent circuit of the NPN common emitter circuit with an emitter resistor as shown in Fig. B, and derive the expression for the input resistance (R_{ib}) and state the resistance reflection rule.</p>  <p align="center">Fig. B</p>	5	2	1	2	
7.a.	Determine the small signal current gain of the CB configuration circuit shown in Fig C.	5	2	1	3	

	 <p style="text-align: center;">Fig. C</p>					
7.b.	<p>For the common base circuit shown in Fig. B, determine I_C and V_{CB}. Assume the transistor to be of silicon. Given $V_{BE} = 0.7 \text{ V}$.</p>  <p style="text-align: center;">Fig B.</p>	5	3	1	3	
8.a.	Draw the frequency response of an amplifier and give the significance of the 3 dB line in bandwidth calculation	4	2	1	2	
8.b.	Explain the impact of bypass capacitor in frequency response of an amplifier with necessary diagram	6	3	1	1	

Course Outcome (CO) and Bloom's level (BL) Coverage in Questions



Evaluation Sheet

Name of the Student:

Register No.:

		Part- A ALL FIVE (5x 1= 5 Marks)		
Q. No	CO	Marks Allotted	Marks Obtained	Total
1	1	1		
2	1	1		
3	1	1		
4	1	1		
5	1	1		
Part- B Any TWO (2 x 10= 20 Marks)				
6.a	1	5		
6.a	1	5		
7.a.	1	5		
7.b.	1	5		
8.a	1	10		

Consolidated Marks:

CO	Marks Allotted	Marks Scored
CO1	25	
Total	25	

Approved by the Course Coordinator