SRM Institute of Science and Technology
College of Engineering and Technology

DEPARTMENT OF ECE

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

OFFLINE MODE

SET C

Academic Year: 2021-2022 (EVEN)

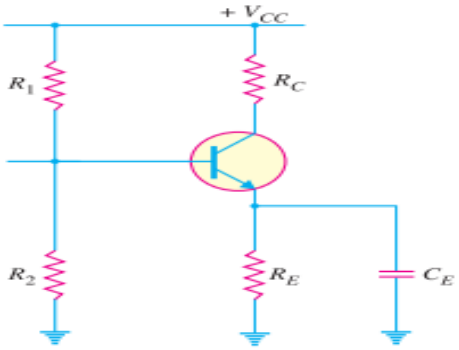
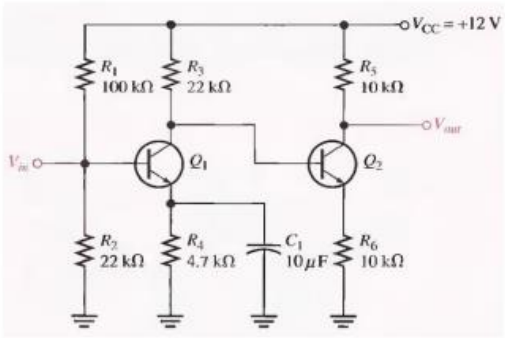
Test: CLAT- 1 **Date: 07-04-2022**
Course Code & Title: 18ECC201J – Analog Electronic Circuits **Duration:** 60 minutes
Year & Sem: II / IV **Max. Marks:** 25

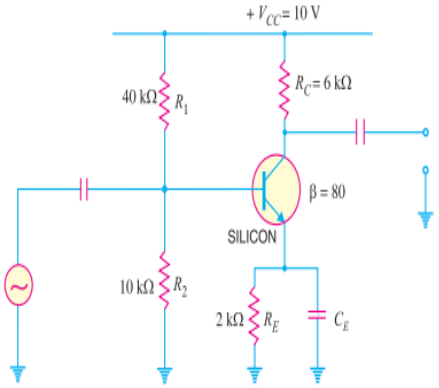
Course Articulation Matrix:

	18ECC201J - Analog Electronic Circuits	Program Outcomes (POs)														
		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	-

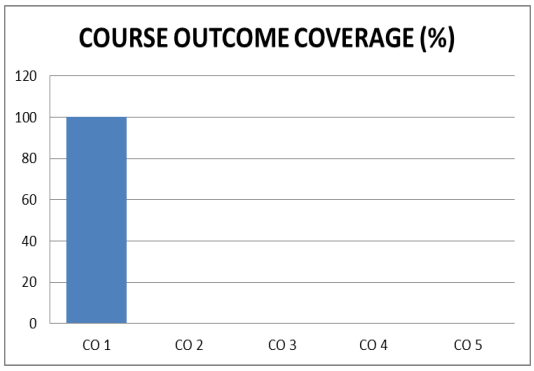
Part - A
(5 x 1 = 5 Marks)
Instructions: Answer ALL 5 Questions

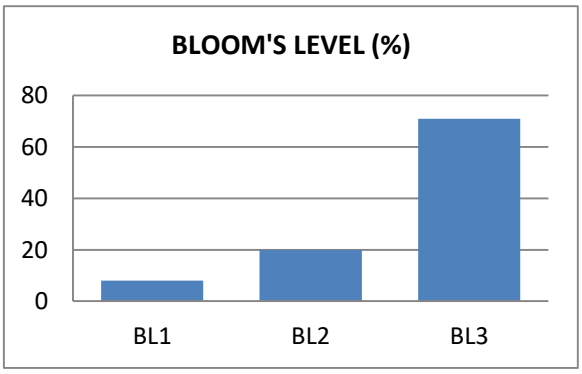
Q. No	Question	Marks	BL	CO	PO	PI Code
1	The phase difference between the output and input voltages of a CC amplifier is..... a. 180º b. 90º c. 270º d. 0º	1	1	1	1	
2	The CB amplifier is used as …….. a. Impedance matching device b. Current buffer c. Voltage buffer d. Inverter	1	1	1	1	
3	Determine the value of g_m if the I_C = 2.16mA. Assume β=100 and $V_A=\infty$. a. 80.3mA/V b. 75mA/V c. 65mA/V d. 83.1mA/V	1	3	1	2	
4	The small signal parameter r_e is …… a. $\frac{r_\pi}{1+\beta}$ b. $1+\beta$ c. $1-\beta$ d. $r_\pi(1+\beta)$	1	1	1	2	

5	The cascode amplifier is a _____ configuration multistage amplifier. a. CE-CE b. CB-CE c. CC-CC d. CE-CB	**1**	**2**	**1**	**1**	
	Part – B **(2 x 10 = 20 Marks)** **Instructions: Answer any TWO**					
6.	**a.** For the voltage divider biasing circuit shown in Fig. 1. Determine d.c load line and Q-point. **b.** What will happen if (i) resistance R_2 is shorted (ii) resistance R_2 is open-circuited (iii) resistance R_1 is shorted (iv) resistance R_1 is open ?.  **Fig. 1.**	**6** 4	**3** 2	**1** 1	**2** 3	
7.	**a.** What is direct coupled amplifier? List the advantages of direct coupled amplifier **b.** For the Direct coupled amplifier shown below. (i) Represent the given circuit by its AC equivalent circuit and obtain expression for voltage gain of each stage and overall voltage gain. (ii) Determine the value of overall voltage gain. Assume I_{C1}=0.3mA, I_{C2}=0.5mA β=125 and V_{BE}=0.7V.  	**2** 8	**2** 3	**1** 1	**1** 2	

8	For the CE amplifier shown below (i) Represent the given circuit by its AC equivalent and obtain expression for voltage gain with C_E connected and C_E removed from the circuit. (ii) Determine the value of voltage gain .Assume I_E=0.65mA, β=80 and V_{BE}=0.7V. 	6 4	**3**	**1**	**2**	

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	6		
6.a	1	4		
7.a.	1	2		
7.b.	1	8		
8	1	10		

Consolidated Marks:

CO	Marks Allotted	Marks Scored
CO1	25	
Total	25	

Approved by the Course Coordinator