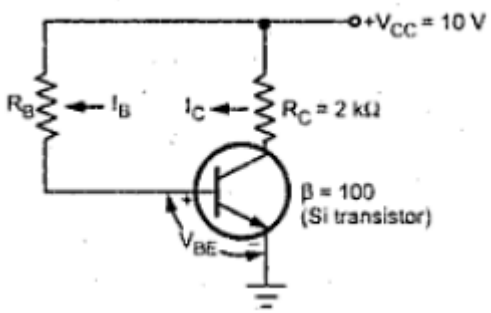
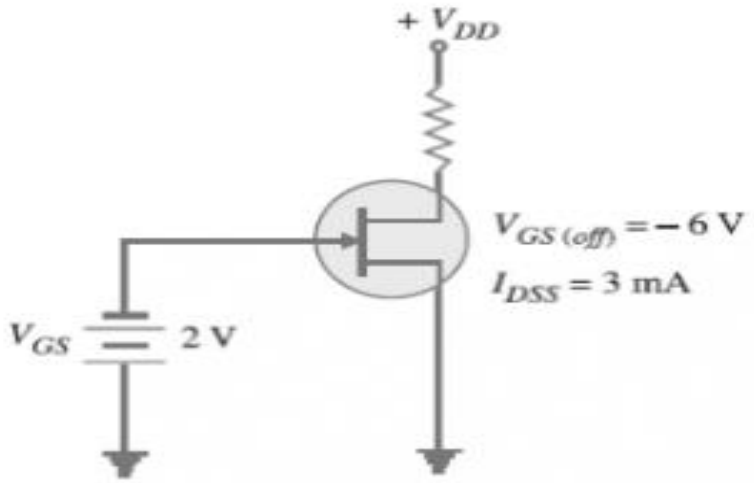
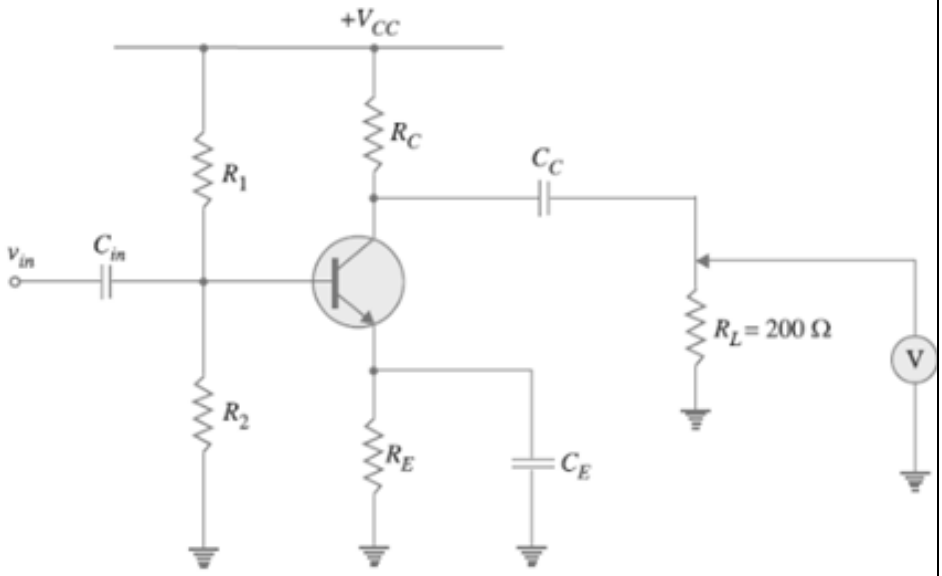
	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Winter Examination – 2023** **Course: B. Tech. Branch: E&TC Semester: III** **Subject Code & Name BTEXC302& Electronic Devices & Circuits** **Max Marks: 60 Date:11/03/2023 Duration: 2:00 To 5:00 PM**		
	Instructions to the Students: *1. All the questions are compulsory.* *2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.* *3. Use of non-programmable scientific calculators is allowed.* *4. Assume suitable data wherever necessary and mention it clearly.*		
		Level/(CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	**Derive the relation between α & β with respect to BJT.**	**C01**	**6**
B)	**In the circuit shown below, for Rb=300KΩ and Rb=150KΩ calculate Ib, Ic and Vce?** 	**C03**	**6**
C)	**Draw neat diagram of RC Coupled amplifier and explain in detail.**	**C03**	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	**Explain E-MOSFET in detail.**	**C03**	**6**
B)	**What is CMOS inverter? Explain its transfer characteristics.**	**C01**	**6**
C)	**Determine the value of drain current for the circuit shown in Fig.**	**C03**	**6**

			
Q. 3	**Solve Any Two of the following.**		**12**
A)	**Explain class c power amplifier in detail.**	**C02**	**6**
B)	**Determine the a.c. load power for the circuit shown in fig** 	**C03**	**6**
C)	**Derive Expression for Maximum Efficiency of Class B Power Amplifier.**	**C02**	**6**
Q.4	**Solve Any Two of the following.**		**12**
A)	**What are the four different types of feedback amplifier? Explain in detail.**	**C04**	**6**
B)	**The overall gain of a multistage amplifier is 140. When negative voltage feedback is applied, the gain is reduced to 17.5. Find the fraction of the output that is feedback to the input.**	**C04**	**6**
C)	**Explain the principle of positive feedback.**	**C04**	**6**

Q. 5	**Solve Any Two of the following.**		**12**
A)	**Draw a neat diagram of clapp oscillator & explain in detail.**	**C01**	**6**
B)	**1 mH inductor is available. Choose the capacitor values in a Colpitts oscillator so that f = 1 MHz and feedback factor equal to 0.25**	**C04**	**6**
C)	**i)State Barkhausen criterion for sustained oscillation.** ii)**Differentiate oscillator from amplifier.**	**C04**	**6**
	***** End *****		

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