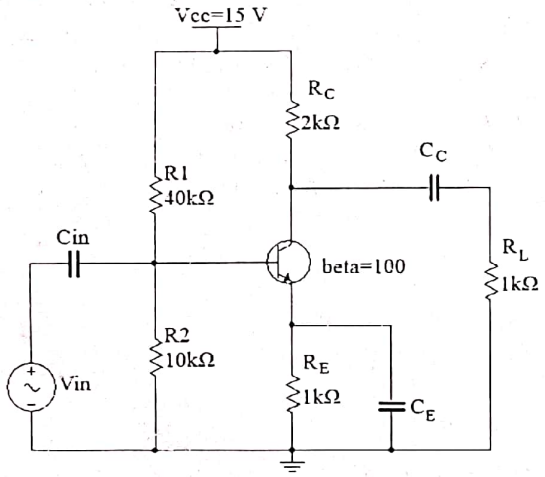
VIT
Vellore Institute of Technology

E1 Slot

Continuous Assessment Test – 2
Basic Electronics & BECE101L

Class Number : VL2021220505623/632/634/636/638/640/642/646/644
Exam Duration : 90 Mins **Maximum Marks:** 50
Faculty Name : PROF. SURESH KUMAR T R, PROF. GAUTAM NARAYAN, PROF. LAVANYA N, PROF. NANDAKUMAR S, PROF. RAJKISHOR KUMAR, PROF. RAJAN KUMAR PANDEY, PROF. HARIHARAN I, PROF. AVINASH CHANDRA, PROF. S. SUNDAR, PROF. SANJAY R

S.No.	Question	Mark	CO	BL
1.	For the BJT Common Emitter configuration discuss the following in detail. (i) Biasing of the configuration (ii) Different regions on the input, output characteristics curve (iii) Current relationship (iii) amplification factor.	10	2	L1
2.	a) The common-base DC current gain of a transistor is 0.967. If the emitter current is 10 mA, what is the value of base current? b) A transistor has $\beta = 150$. Find the collector and base currents, if $I_E = 10$ mA.	5+5	2	L3
3.	a) For the circuit shown below with β=100, find the values of V_B, V_E, I_E, I_C, I_B, and V_C.  b) What is the use of coupling capacitors in the amplifier circuits?	8+2	3	L3
4.	i) Explain the construction and working of depletion type MOSFET. Also plot its characteristics. ii) For 2N7002 E-MOSFET $I_{D(on)}$=200mA at V_{GS}=8V. Determine the drain current for V_{GS}=6V. Drain current start flow when the gate potential is exceeding 3V.	5+5	2	L3
5.	(a) A Colpitts oscillator oscillating at 1 MHz is designed with 1mH inductor and 0.25 feedback fraction. Calculate the required capacitors values. (b) i) How the transistor amplifier with proper feedback produce oscillations. ii) Explain the condition for sustained oscillations in wave form generator circuits.	5+5	3	L3