

Roll No



**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023**

Semester : Semester III - 2022

Course Code : EEE2009

Course Name : Sem III - EEE2009 - Analog Electronics Circuits

Program : B. TECH

Date : 2-NOV-2023

Time : 9:30AM - 11:00AM

Max Marks : 50

Weightage : 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

(5 X 2 = 10M)

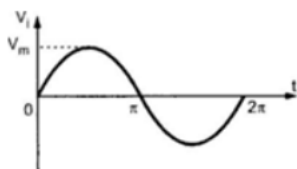
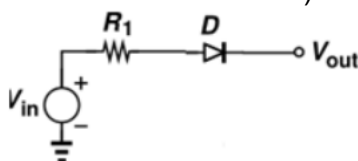
1. In a common base connection, $\alpha = 0.95$. The voltage drop across $2\text{ k}\Omega$ resistance which is connected in the collector is 2V . Find the base current. (CO1) [Knowledge]
2. List the characteristics of zener diod. (CO1) [Knowledge]
3. In a common base connection, current amplification factor is 0.9 . If the emitter current is 1mA , determine the value of base current. (CO1) [Knowledge]
4. Discuss the VI characterises of Diode (CO2) [Knowledge]
5. What is biasing? What are the different biasing circuits used for operating BJT as amplifiers? (CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

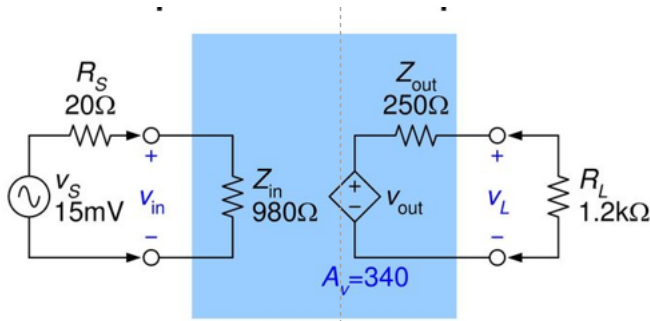
(2 X 10 = 20M)

6. For the circuit given below, what will be the output if the input signal is a sine wave shown below. (Use ideal diode model of diode). Draw the output waveform with proper justification.



(CO1) [Comprehension] ^{1/2}

7. The amplifier characteristics constitute high input impedance and low output impedance. Mr. Nagesh constructed the below circuit and he claimed that it perfectly worked as an amplifier. Is the below circuit carries the features of an amplifier? If yes then prove it by finding its input and output impedance.



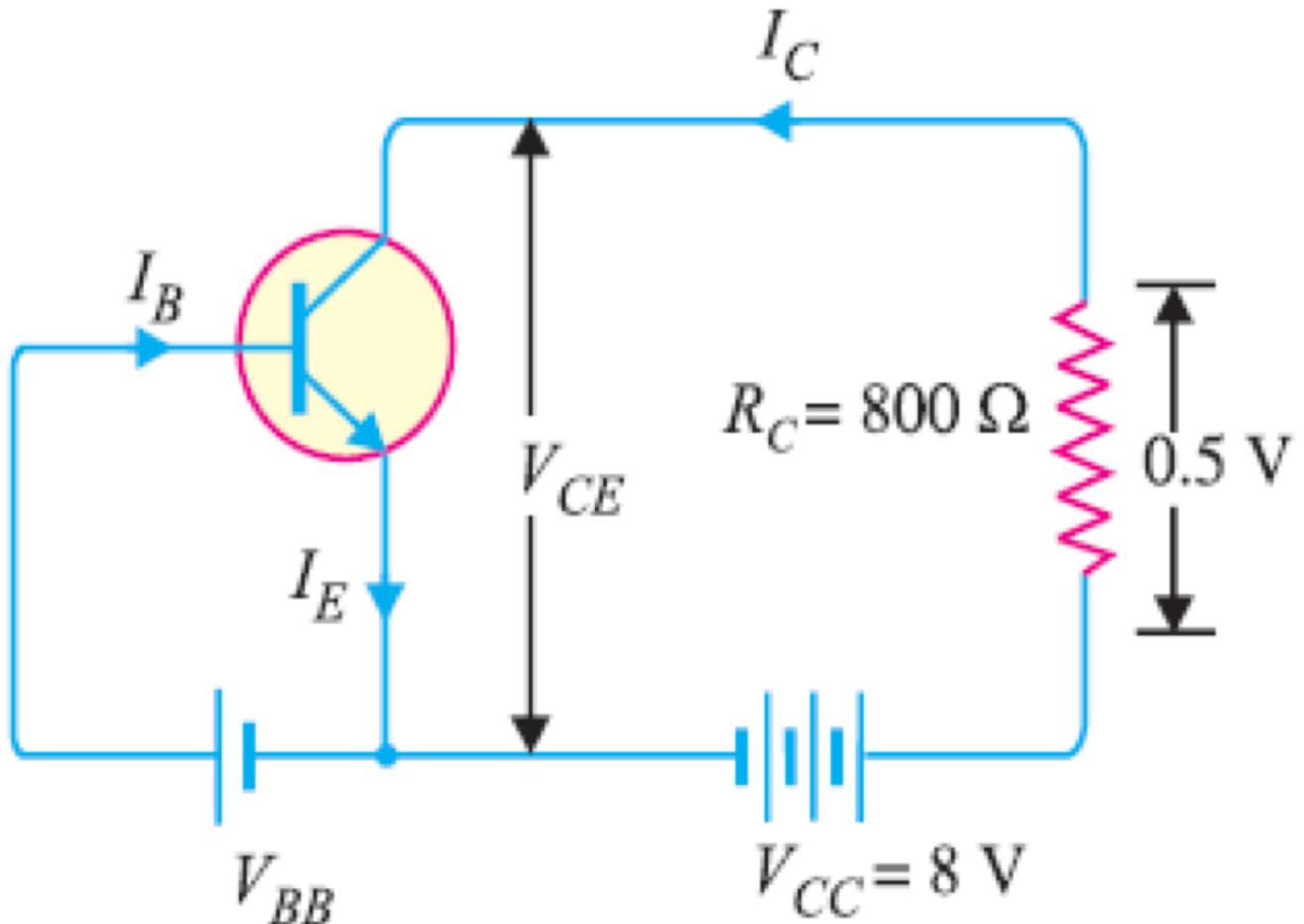
(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

8. A transistor is connected in common emitter (CE) configuration in which collector supply is 8 V and the voltage drop across resistance R_C connected in the collector circuit is 0.5 V. The value of $R_C = 800 \Omega$. If $\alpha = 0.96$, determine : (i) collector-emitter voltage (ii) base current.



(CO2) [Application]