

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, December 2022-23
B. Tech. I sem.

Roll No.....

EE1118: Fundamentals of Electrical and Electronics Engineering

Time: 3 hours

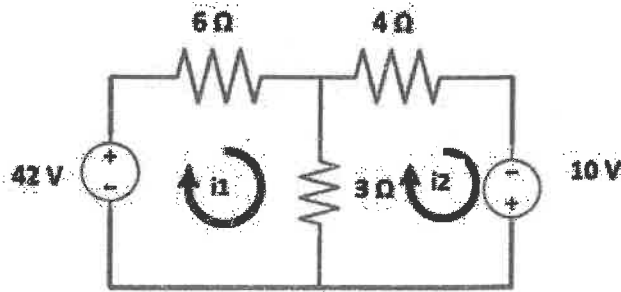
Max. Marks: 30

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Mention all the assumptions for your answers clearly.
3. Questions 1 to 5 are compulsory, only Q6 has choice between two questions.

Q.1 In the circuit shown, determine i_1 and i_2 using mesh analysis.

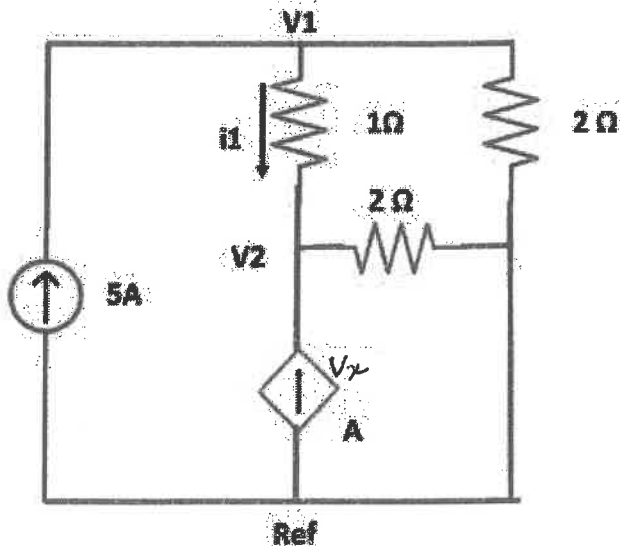
5.0
(EE1118.1)



(V₂)

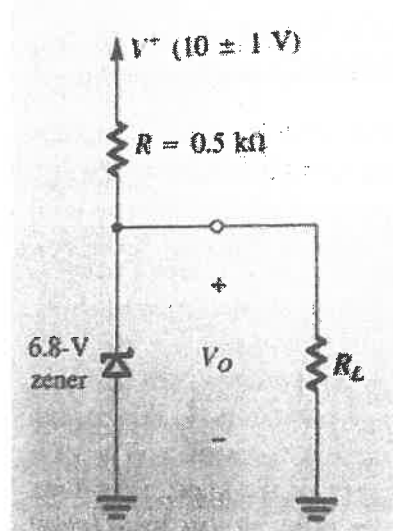
Q.2 In the schematic diagram shown below find the voltage if A is 2V₁

5.0
(EE1118.1)



- Q. 3 In the circuit shown below, find the output Voltage across the load resistor. What will be the change in output voltage when the supply voltage changes by ± 1 V?

5.0
(EE1118.2)



- Q. 4 Calculate the quiescent collector current and collector-emitter voltage for BJT amplifier shown in the Figure below. Draw the ac model used and calculate the voltage gain of the amplifier. Given, $R_1=47K \Omega$, $R_2=760K \Omega$, $R_C=R_E=4K \Omega$, $V_{CC}=12V$, $h_{fe}=100$. Please show the intermediate calculations and mention assumed values.

5.0
(EE1118.4)

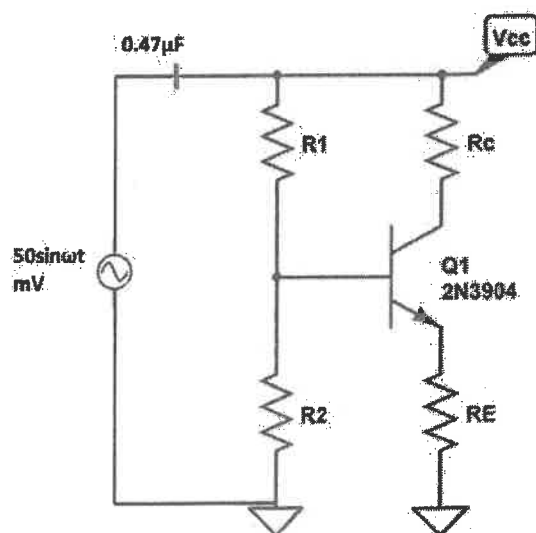
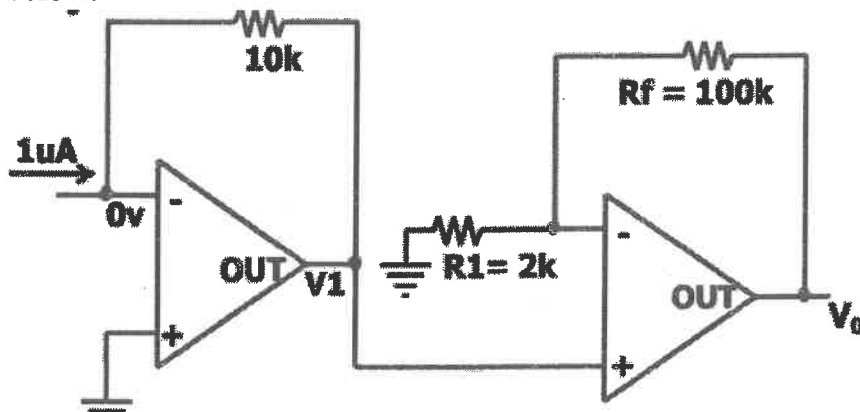


Figure 4.1 Common Emitter amplifier circuit for Q4.

- Q. 5 Draw the output characteristics of a typical N channel MOSFET and explain the different regions of operation. Write the equation for Load Line and draw the load line, clearly showing the intercepts on the axes. 5.0
(EE118.3)
- Q. 6 With example discuss the need for modulation of message signal. Explain with help of block diagram the basic structure of Digital Communication System 5.0
(EE1118.5)
- OR
- Determine the output voltage in the Operational amplifier circuit shown below:



all the best!

