United International University **(UIU)**
Dept. of Computer Science & Engineering **(CSE)**
MID Exam, Trimester: Spring 2025

Course Code: EEE 2123**; Course Title:** Electronics

Total Marks: 30**; Duration:** 1 hour 30 minutes

Any examinee found adopting unfair means would be expelled from the trimester/ program as per UIU disciplinary rules.

1.

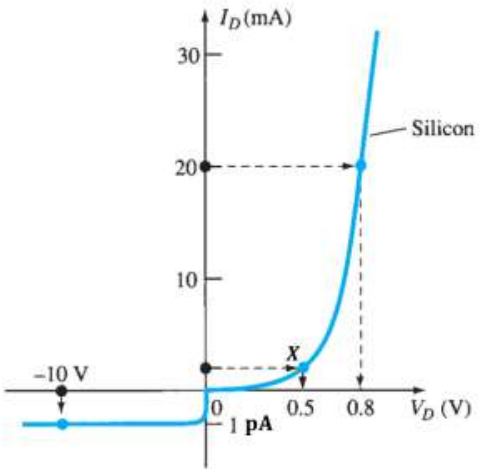

Fig 1: Figure for question 1.

I-V characteristics of a **silicon** diode is shown in the above figure at temperature Tx. Determine the followings:

a) The thermal voltage, V_{Tx} for n=1.2 [2]

b) The operating temperature of the diode. [1]

c) The diode current at the point X. [1.5]

d) If the temperature of the diode is kept at **501K**, then draw the approximate I-V characteristics on the same I-V characteristics shown in the above figure. [1.5]

---

2. Determine I_{Ge}, I_1, I_2, v_1, v_2 from the following circuit. [8]

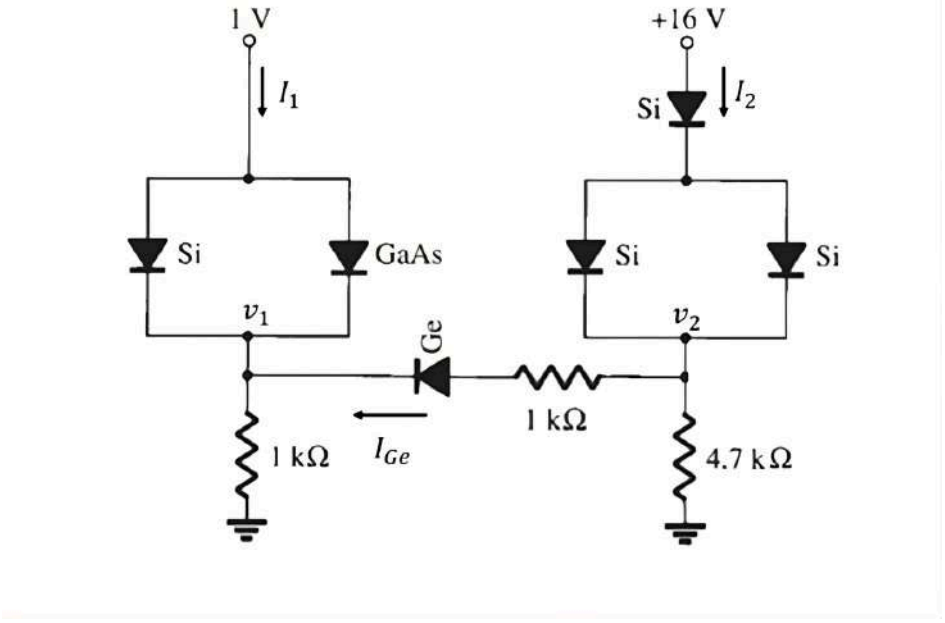

Fig 2: Figure for question 2.

3. Assume each of the diodes of the following figure has a breakdown voltage of **70 V**. Now answer the following questions.

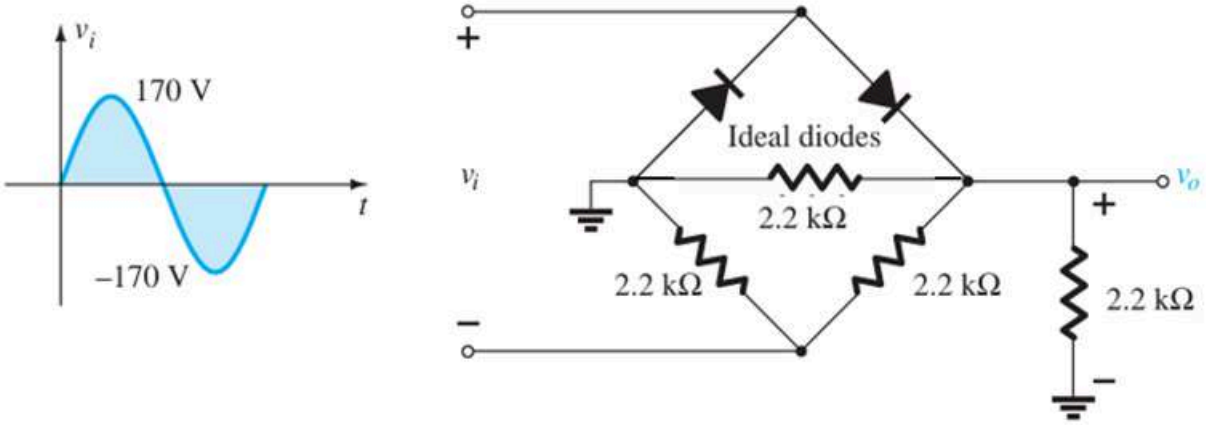

Fig 3: Figure for question 3

(a) Determine the exact relationship between input and output voltage. [3]

(b) Draw the waveform of output voltage with proper labeling and values. [2]

(c) Determine PIV for any of the diodes. [2]

(d) Explain whether the circuit will be safe to operate or not. [1]

---

4. Determine v_o for the network of Figure 4 for the input shown. Sketch the vo of the following circuit with proper voltage levels. [5+3]

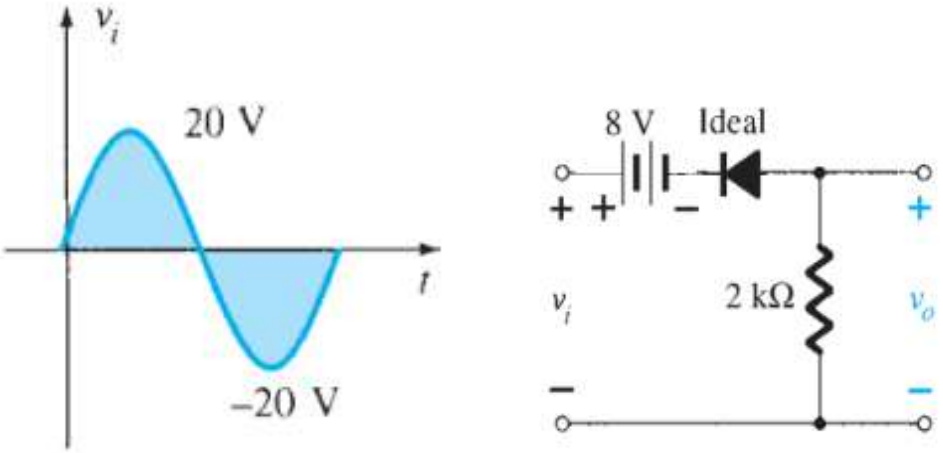

Fig 4:Figure for question 4