



Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering
Mid-Term Examination, Summer '26

Course Code: 0714-211
Section: A, B, C, D, E, F, G
Full Marks: 25

Course Title: Electronics I
Level-Term: L2-T1
Exam Date: July 01, 2026

Teacher's Initial: SD, KNA, KAH, MH
Time: 1.5 Hours

[There are five (05) questions, answer all of them.]

[The second right most column indicates the COs with respective Bloom's level.]

[The right most column indicates the assigned marks.]

- Q1.** Suppose you need to construct a counter for counting products in a factory setup. **Which** type of Diode will you use for this case? **Explain** its working principle and how the diode is used for counting products with necessary diagrams. CO-1 [5]
C(2)

Or

Describe the working principle of an n channel JFET with necessary diagrams. CO-1 [5]
C(2)

- Q2.** **Describe** the operation of a Center-tapped Transformer Full Wave Rectifier with necessary diagrams. If the input to a Center-tapped Transformer [turns ratio 1:2] full wave rectifier made with Si diode is $120\sin 60t$ V, **determine** (i) Average dc output voltage, (ii) PIV of the diodes. CO-2 [5]
C(2)

- Q3.** **Determine** I_{D1} , I_{D2} , I_{D3} and V_O for the following circuit in Fig. Q3. CO-2 [5]
C(3)

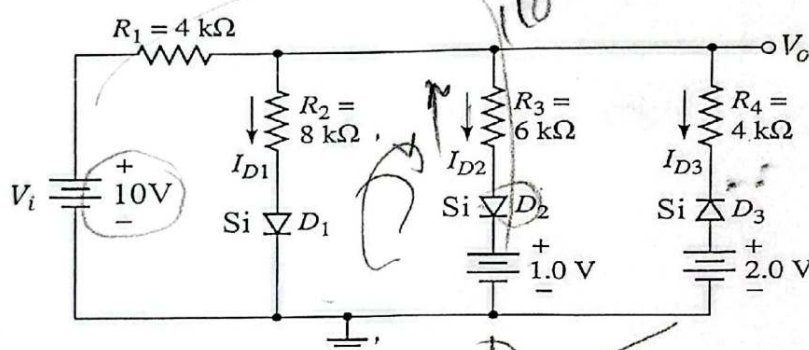


Fig. Q3

- Q4.** **Determine and sketch** the output signal of the following clipper circuit in Fig. Q4 for the given input signal. CO-2 [5]
C(3)

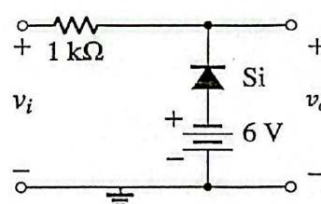
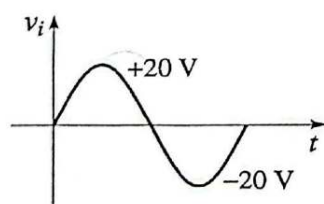


Fig. Q4

Q5.

For the following circuit in Fig. Q5, determine:

CO-2 [5]

- (i) The minimum value of R_L to ensure that the Zener Diode is in the "on" state.
- (ii) The value of R_L that will establish maximum power conditions for the Zener diode.
- (iii) The range of I_L when V_L is being maintained at 24V.

C(3)

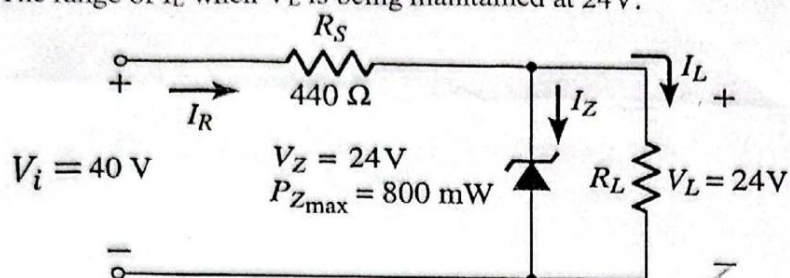


Fig. Q5