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Daffodil International University

Department of Electrical and Electronic Engineering
Faculty of Engineering

Mid-Term Examination, Fall – 2025

Course Code: 0714-211 | Course Title: Electronics I
Section: A, B, C, D, E | Level-Term: L2-T1 | Teacher's Initial: SD
Total Marks: 25 | Exam Date: October 20, 2025 | Time: 1.5 Hours

[There are five (05) questions, answer all of them.]
[The figures in the right-hand margin indicate the allocated marks.]
[COs represent learning outcomes of the course.]

Q1. **Describe** the working principle of an **n channel JFET** with necessary diagrams. CO-1 C(2) [5]

Or

Explain the operation and applications of Light Emitting Diode (LED).

Q2. **Describe** the operation of a Center Tapped Transformer [turns ratio 1:2] Full Wave Rectifier with necessary diagrams. If the input to a center tapped transformer full wave rectifier made with Ge diode is $24 \sin 80t$ V, **find** the PIV of the diodes used in the rectifier. CO-2 C(2) [5]

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

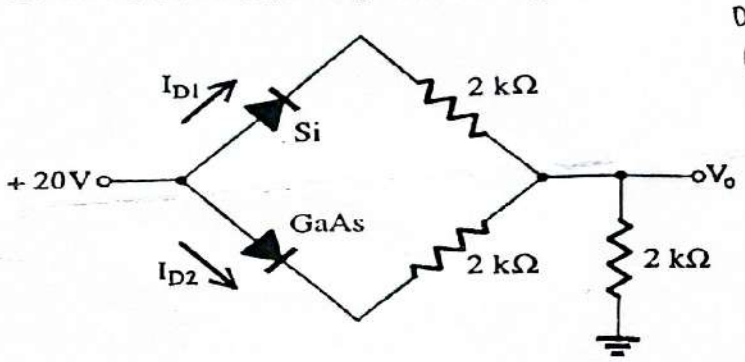
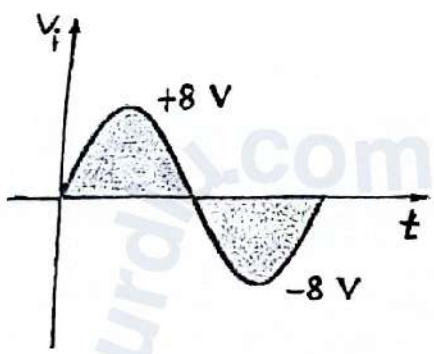


Fig. Q3

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



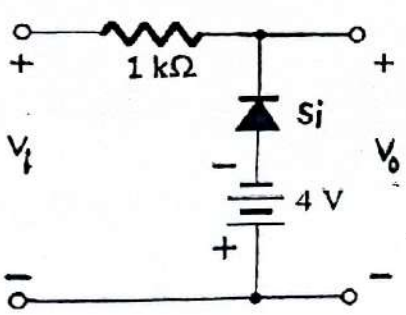


Fig. Q4

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Q5. For the following circuit in Fig. Q5, **determine:** CO C(3)

(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 12V.

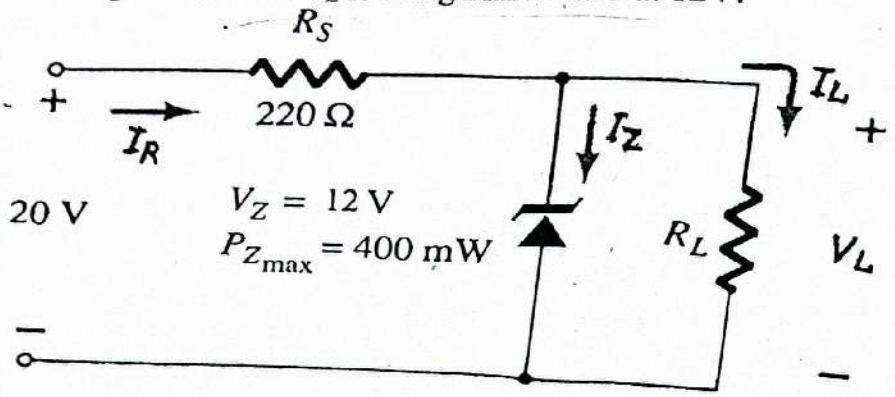


Fig. Q5

$I_D = I_R = -$

$P = VI$

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