

Daffodil International University
Department of Electrical and Electronic Engineering
Faculty of Engineering
Mid-Term Examination, Fall – 2025

Course Title: Electronics I
Level-Term: L2-T1
Exam Date: October 20, 2025

Teacher's Initial: SD
Time: 1.5 Hours

code: 0714-211

code: A, B, C, D, E

Marks: 25

[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.

Or

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

junction of field effect Transistor
CO-1 [5]
C(2)

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 [5]
C(2)

Q3. Determine I_{D1} , I_{D2} and V_O for the following circuit in Fig. Q3.

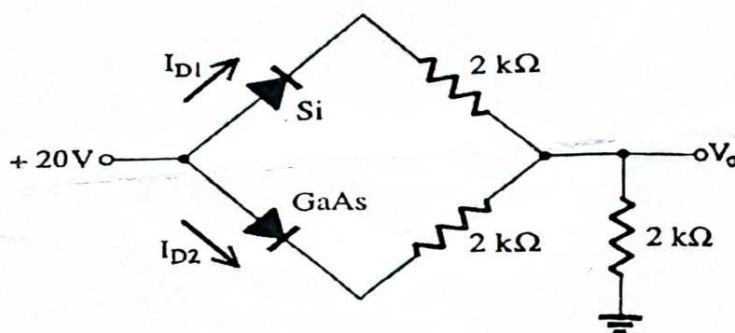
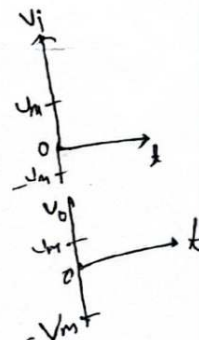


Fig. Q3

CO-2 [5]
C(3)



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)

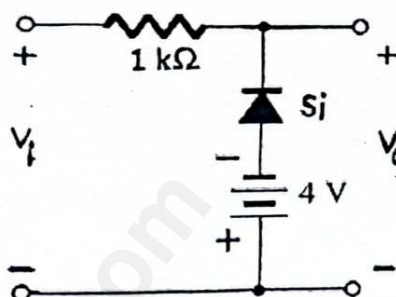
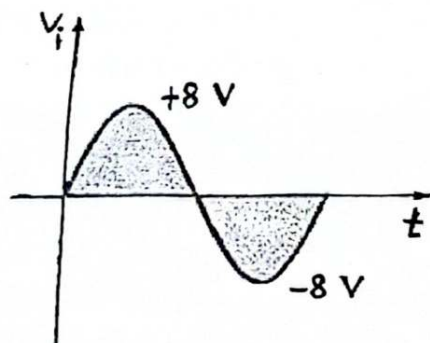


Fig. Q4

Q5.

For the following circuit in Fig. Q5, **determine:**

- (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.

CC

C(3)

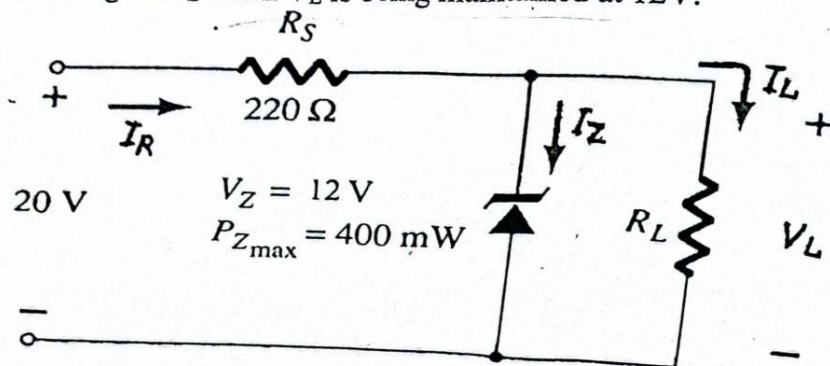


Fig. Q5

$$I_D = I_R = -$$

$$P = VI$$