

Department of Electrical Engineering

Midterm Exam

Date: 25/04/2020

Course Details

Course Title: Electronic Devices and Circuits _____

Module: _____

Instructor: _____

Total _____

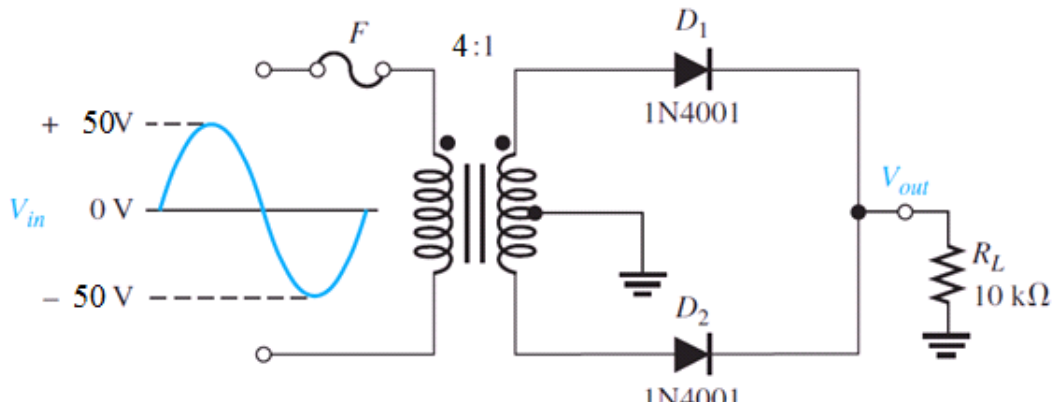
Marks: _____

Student Details

Name: _____

Student ID: _____

Student Signature: _____

Q1.	<p>For the circuit given in figure 1, answer and solve following problems.</p> <ol style="list-style-type: none"> a) What type of circuit is this? (1) b) What is the total peak secondary voltage? (1) c) Find the peak voltage across each half of the secondary. (1) d) What is the peak current through each diode? (2) e) What minimum PIV rating must the diodes have? (2) <div style="text-align: center; margin: 10px 0;">  </div> <p style="text-align: center;">Figure 1</p>	<p>Marks 07 CLO 02</p>
Q2.	<p>Determine the ripple factor for the filtered bridge rectifier with a load as indicated in Figure 2</p>	<p>Marks 05 CLO 02</p>

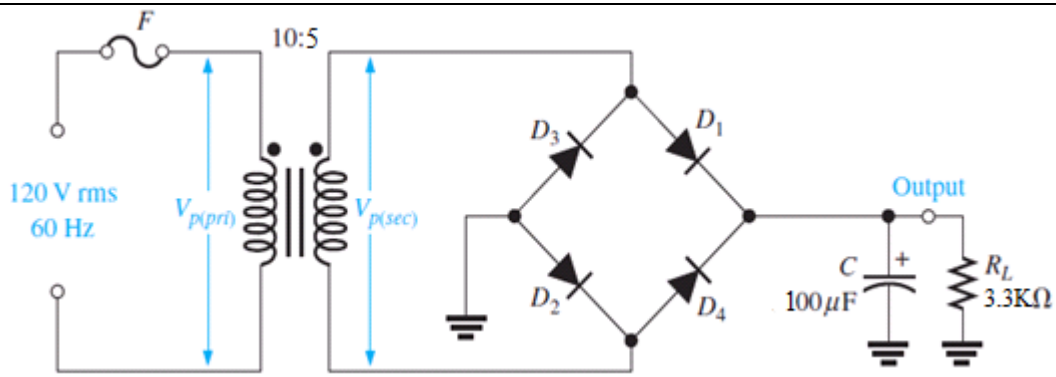


Figure 2

Q3.

Determine the output voltage waveform for the circuit given in Figure 3

Marks 02

CLO 02

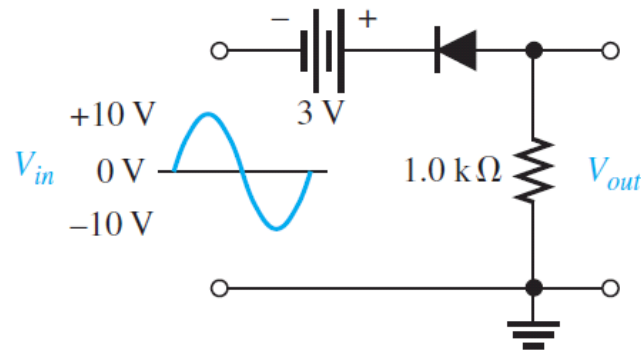


Figure-3

Q4.

Determine the output voltage waveform for the circuit given in Figure 4. Assume the RC time constant is much greater than the period of the input.

Marks 02

CLO 02

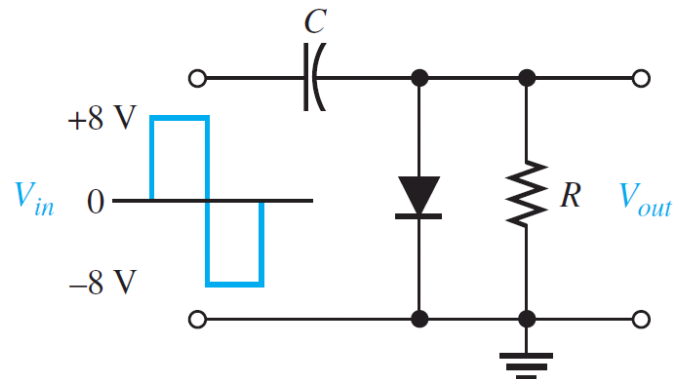


Figure-4

Q5.

Answer the following questions.

Marks 14

CLO 01

- What is a Power Supply Filter? Discuss its operation with help of a circuit diagram. (3)
- How are n-type and p-type semiconductors formed? (2)
- What is a diode limiter? What is the difference between a positive limiter and a negative limiter? (3)

- | | | | |
|--|--|--|--|
| | | <p>d) What component in a clamping circuit effectively acts as a battery? (1)</p> <p>e) When a 60 Hz sinusoidal voltage is applied to the input of a half-wave rectifier, what is the output frequency? (1)</p> <p>f) If the load resistance connected to a filtered power supply is decreased, what happens to the ripple voltage? (1)</p> <p>g) Discuss how diode limiters and diode clampers differ in terms of their function. (3)</p> | |
|--|--|--|--|