Electronic Circuits – Assignment 03

Diode Applications I

#	Student ID	Student Name	Grade (10)
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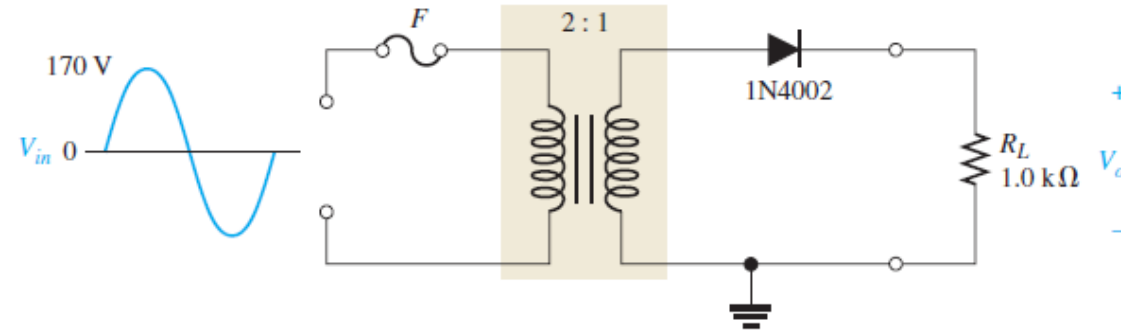
Delivery Date	

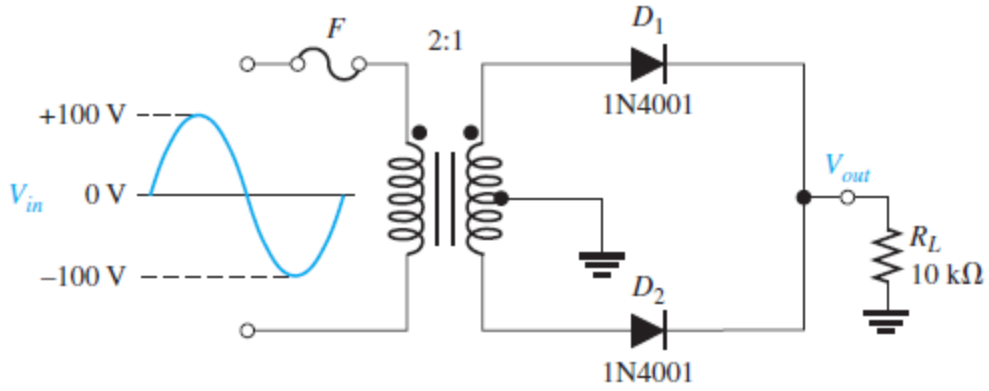
١. يتم تسليم التمرين محلولا في خلال أسبوع من تاريخ التمرين، و يتم حذف درجتين من التمرين عن كل أسبوع تأخير
٢. يتم التسليم لمعيد المقرر مباشرة
٣. تتم أجابه التمرين في نفس ورق الأسئلة

T & False questions

#	Question	Answer
1	The two regions of a diode are the anode and the collector.	F
2	A diode conducts current when forward-biased.	T
3	Two types of current in a diode are electron and hole.	T
4	The output frequency of a half-wave rectifier is twice the input frequency.	F
5	PIV stands for positive inverse voltage.	F
6	The output frequency of a full-wave rectifier is twice the input frequency.	T

MCQ

#	Question	
1	When a diode is forward-biased and the bias voltage is increased, the voltage across the diode (assuming the practical model) will **(a)** increase **(b)** decrease **(c)** not change	c
2	When a diode is reverse-biased and the bias voltage is increased, the reverse current (assuming the complete model) will **(a)** increase **(b)** decrease **(c)** not change	a
3	If the forward current in a diode is increased, the diode voltage (assuming the practical model) will **(a)** increase **(b)** decrease **(c)** not change	c
4	If the barrier potential of a diode is exceeded, the forward current will **(a)** increase **(b)** decrease **(c)** not change	a
5	If the turns ratio of the transformer in Figure 2–28 is decreased, the forward current through the diode will  **(a)** increase **(b)** decrease **(c)** not change	b

6	If the PIV rating of the diodes in Figure 2–36 is increased, the current through *RL* will  **(a)** increase **(b)** decrease **(c)** not change	c
7	To forward-bias a diode, **(a)** an external voltage is applied that is positive at the anode and negative at the cathode **(b)** an external voltage is applied that is negative at the anode and positive at the cathode **(c)** an external voltage is applied that is positive at the *p* region and negative at the *n* region **(d)** answers (a) and (c)	d
8	Although current is blocked in reverse bias, **(a)** there is some current due to majority carriers **(b)** there is a very small current due to minority carriers **(c)** there is an avalanche current	b
9	When forward-biased, a diode **(a)** blocks current **(b)** conducts current **(c)** has a high resistance **(d)** drops a large voltage	b
10	The dynamic resistance can be important when a diode is **(a)** reverse-biased **(b)** forward-biased **(c)** in reverse breakdown **(d)** unbiased	b
11	Ideally, a diode can be represented by a **(a)** voltage source **(b)** resistance **(c)** switch **(d)** all of these	c
12	In the complete diode model, **(a)** the barrier potential is taken into account **(b)** the forward dynamic resistance is taken into account **(c)** the reverse resistance is taken into account **(d)** all of these	d
13	When a 60 Hz sinusoidal voltage is applied to the input of a half-wave rectifier, the output frequency is **(a)** 120 Hz **(b)** 30 Hz **(c)** 60 Hz **(d)** 0 Hz	c

14	For the circuit in Question 15, the diode must be able to withstand a reverse voltage of **(a)** 10 V **(b)** 5 V **(c)** 20 V **(d)** 3.18 V	a
15	When a 60 Hz sinusoidal voltage is applied to the input of a full-wave rectifier, the output frequency is **(a)** 120 Hz **(b)** 60 Hz **(c)** 240 Hz **(d)** 0 Hz	a
16	When the peak output voltage is 100 V, the PIV for each diode in a center-tapped full-wave rectifier is (neglecting the diode drop) **(a)** 100 V **(b)** 200 V **(c)** 141 V **(d)** 50 V	b