

CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA DE SANTA CATARINA
DEPARTAMENTO DE ELETRÔNICA
CURSO TÉCNICO DE ELETRÔNICA
 Eletrônica Básica

PROVA 1 DATA: 24/09/2007 (2 HORAS AULA)

Nome: _____

OBS: Prova individual e com consulta ao material.

1) (2 pontos) Da folha de dados dos diodos abaixo, obtenha as grandezas solicitadas na tabela 1.

Absolute Maximum Ratings*

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value									Units
		5391	5392	5393	5394	5395	5396	5397	5398	5399	
V _{RRM}	Peak Repetitive Reverse Voltage	50	100	200	300	400	500	600	800	1000	V
I _{F(AV)}	Average Rectified Forward Current, .375 " lead length @ T _A = 75°C	1.5									A
I _{FSM}	Non-repetitive Peak Forward Surge Current 8.3 ms Single Half-Sine-Wave	50									A
T _{stg}	Storage Temperature Range	-55 to +150									°C
T _J	Operating Junction Temperature	-55 to +150									°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Thermal Characteristics

Symbol	Parameter	Value	Units
P_D	Power Dissipation	4.8	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	26	$^\circ\text{C/W}$

Electrical Characteristics

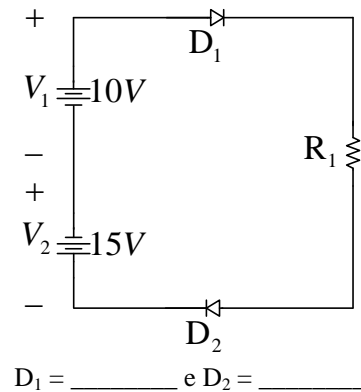
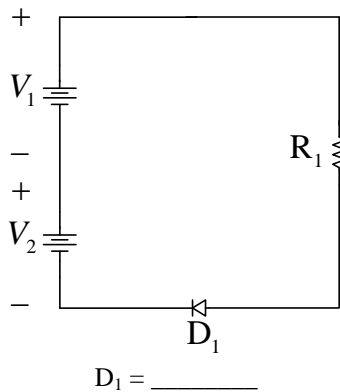
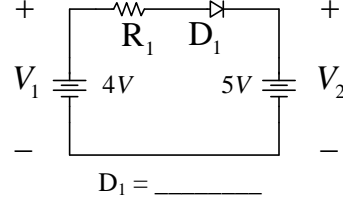
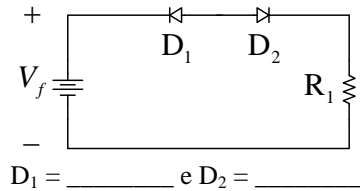
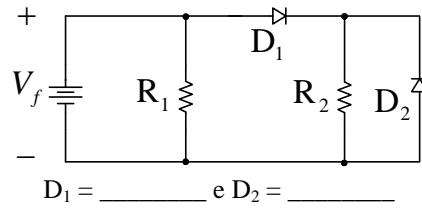
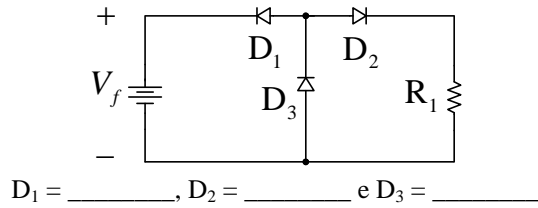
$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Device									Units
		5391	5392	5393	5394	5395	5396	5397	5398	5399	
V _F	Forward Voltage @ 1.5 A	1.4									V
I _R	Reverse Current @ rated V _R T _A = 25°C T _A = 100°C	5.0 300									μA μA
C _T	Total Capacitance V _B = 4.0 V, f = 1.0 MHz	25									pF

Tabela 1 – Dados característicos de diodos.

Grandeza	Valor obtido no catálogo (1N5392)
Corrente média	
Corrente máxima	
Tensão reversa máxima de pico	
Queda de tensão direta	

2) (2 pontos) Para os circuitos abaixo, indique se os diodos est o conduzindo (ON) ou bloqueados (OFF).



3) (2 pontos) Para o circuito mostrado na figura abaixo, calcule as tens es e correntes solicitadas na tabela 2.

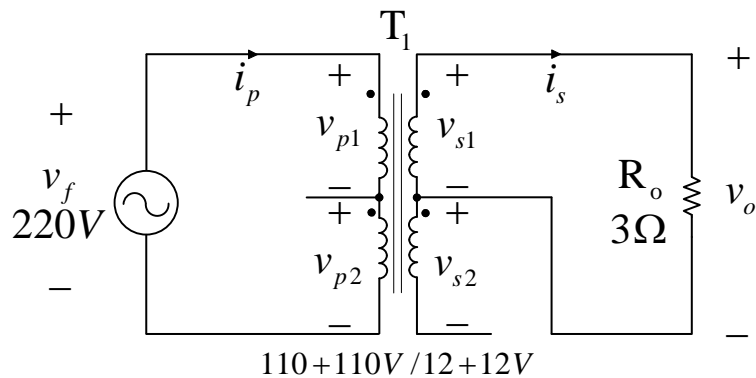
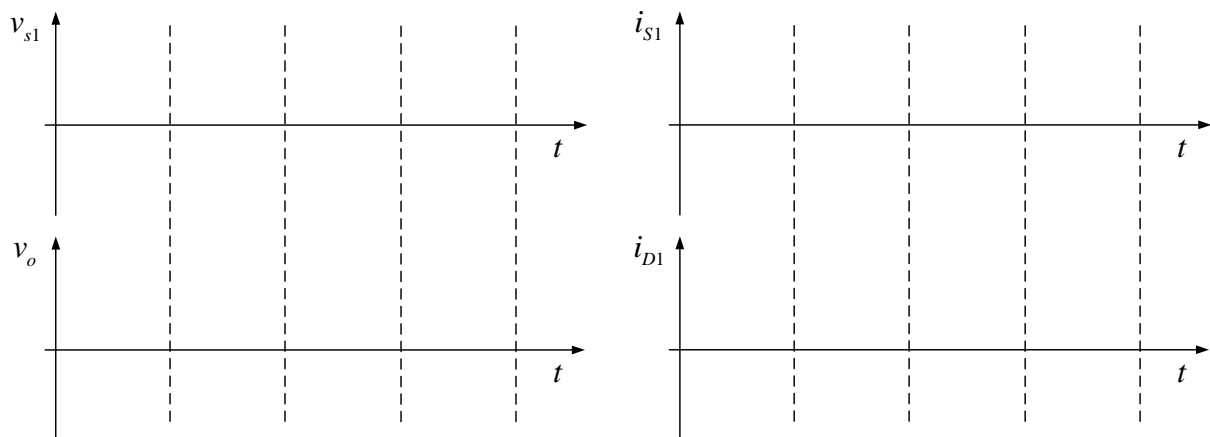
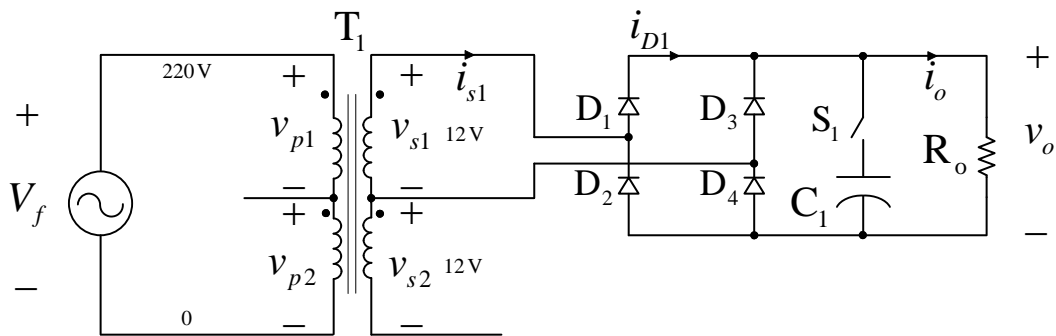


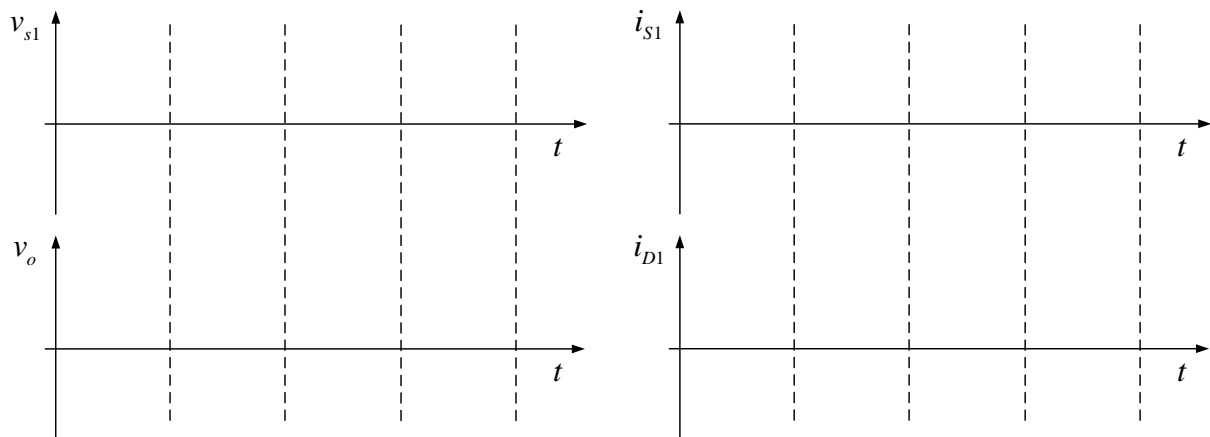
Tabela 2 – Grandezas do circuito da figura acima.

Grandeza	Valor determinado
Tens�o eficaz na rede ($v_{f \text{ RMS}}$)	
Tensa de pico na entrada do transformador ($V_{p1} + V_{p2}$)	
Rela��o de transforma��o de T_1	
Tens�o eficaz na carga ($v_o \text{ RMS}$)	
Tens�o de pico na carga ($v_o \text{ pico}$)	
Corrente eficaz na carga ($i_s \text{ RMS}$)	
Corrente de pico no secund�rio de T_1 ($i_s \text{ pico}$)	
Corrente eficaz na rede ($i_p \text{ RMS}$)	
Corrente de pico na rede ($i_p \text{ pico}$)	
Tens�o m�dia na carga ($v_o \text{ medio}$)	

4) (2 pontos) Para o circuito da figura abaixo, desenhe as formas de onda considerando a chave S_1 aberta, e em seguida fechada.



Chave S_1 aberta.



Chave S_1 fechada.

5) (2 pontos) Verifique as condições dos diodos disponíveis na bancada e preencha a tabela 3.

Tabela 3 – Condições dos diodos testados.

Diodo	Condição
D_1	
D_2	
D_3	