

## DE-5425-5426

## B. E. - III (ECC) (Sem. VI) Examination November / December - 2006 Industrial Electronics

Time: Hours]

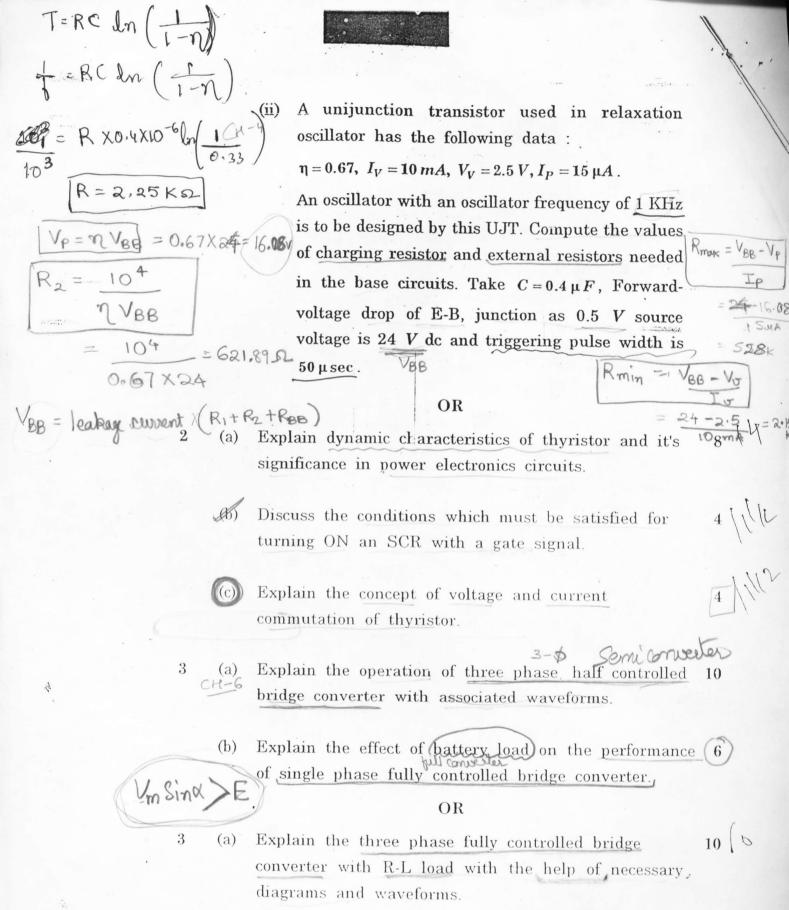
[Total Marks: 100

## DE-5425

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Instructions	:

નીચે દર્શાવેલ 👉 નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી, Fillup strictly the details of 👉 signs on your answer book.	Seat No.:
Name of the Examination :	
B. E 3 (ECC) (SEM. 6)	
Name of the Subject :	
INDUSTRIAL ELECTRONICS	Japain Salain
Subject Code No.: 5 4 2 5 Section No. (1, 2):	1 Student's Signature

- 1 (a) Explain IGBT and discuss its characteristics with necessary diagrams.
  - (b) Explain operation of TRIAC and its control strategies 6 0 3
  - (c) The gate current of a forward biased SCR is gradually increased from zero until the device in turned on. It is observed that gate current just prior to the instant of turn ON, is 1 mA and soon after SCR goes into conduction, gate current decays to about 0.3 mA. Discuss how it happens.
- 2 (a) Classify different methods of commutations for thyristors. Explain each in brief.
  - (b) (i) Compare an UJT firing circuit with R and RC 8



## Instructions

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	E 3 (ECC) (SEM. 6)	
	f the Subject :	
IND	USTRIAL ELECTRONICS	
Subject	Code No.: 5 4 2 6 Section No. (1, 2,): 2	
4 (3)	Explain type-E chopper with proper waveforms.  Explain load commutated chopper with its voltage and current waveforms.	8 [1
5 (a)	Explain the single phase full bridge inverter connected to RL load.	10/6
(Ja)	What is modulation index for an inverter? Explain the multi pulse modulation technique to show how it can be used for voltage control and harmonic reduction.	8/4
	OR	
C(X)	Explain with the help of appropriate waveform the working of a three phase bridge inverter for 180° conduction mode. Compare it with 120° mode of concluding.	10
2 1		
Us	Why voltage control is required in Inverters? Discuss	8
	Inverters.  Ext Control of ac op voltage  int  int  int  int  int  int  int  in	
) Wr	ite short notes on (any two): of weekin -> Phym	16
(a)	Speed control of DC drives using single phase full bridge converter.	
(h)	Schemes for induction motor speed control.	2
(c)	Over voltage protection for thyristors	
(d)	Over current protection for thyristors	
((1)	Over current protection for theristors	