Seat No.: _____   Enrolment
No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING - SEMESTER–V • EXAMINATION – SUMMER • 2015

Subject Code: 350902   **Date: 04-05-2015**

Subject Name: Industrial Electronics

Time: 02:30 pm - 05:00 pm   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **English version is considered to be Authentic.**

Q.1	(a)	Draw and explain the circuit of three phase full wave bridge type rectifier. Draw the waveforms and state the sequence of conduction of diode.	**07**
	(b)	Draw the control circuit using one UJT & two SCRs explain its working.	**07**
Q.2	(a)	Explain the speed control of universal motor using TRIAC and DIAC.	**07**
	(b)	Explain the continuous & discontinuous conduction in motors operated from the controlled rectifier.	**07**

OR

	(b)	State methods of commutation and explain any one method with appropriate diagram.	**07**
Q.3	(a)	Draw the circuit of half bridge and full bridge SCR inverters. Discuss their advantages and disadvantages .	**07**
	(b)	Explain construction, working and Turn on, Turn off process of MCT.	**07**

OR

Q.3	(a)	Explain working of basic chopper circuit and explain the classification of chopper.	**07**
	(b)	Explain the use of chopper for the speed control of slip ring induction motor.	**07**
Q.4	(a)	Explain with necessary sketches working principle of high frequency dielectric heating. Also list five applications and explain any one in brief.	**07**
	(b)	Discuss the difference between high frequency induction heating and dielectric heating.	**07**

OR

Q. 4	(a)	List out application of ultrasonic waves and explain how ultrasonic waves are detect cracks in the materials.	**07**
	(b)	State the advantages and disadvantage of induction heating.	**07**
Q.5	(a)	Explain the sequence timer using IC555 and working with sketches.	**07**
	(b)	Write down types of resistance welding and explain any one in brief, state the advantages.	**07**

OR

Q.5	(a)	Using mercury thermometer and photo device draw and explain circuit for the temperature control in the furnace .	**07**
	(b)	Explain the switch mode power supply with block diagram.	**07**

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5|`Gv !	V	Y™L O[.h O],J[J A™LH 5™SFZGF Z[lS8OFIZGM 5lZ5Y NMZLG[;DHFJM.T[GF VFp85]8 J[JOMD" NMZM.0FIM0GF JCGGM S™D ;DHFJM.	**07**
	A	V[S UJT VG[A[SCR JF/M 5<; Sg8=M,GM p5IMU SZLG[[[[[[[[[Sg8=M, 5ZL5Y NMZM.	**07**
5|`Gv Z	V	DIAC VG[TRIAC JF5ZL I]]]]GLJ;", DM8ZGL UlT lGI\+LT SZJFGL SFI" 5NnlTVM ;DHFJM.	**07**
	A	Sg8=M<0 Z[lS8OFIZYL RF,TL DM8ZDF\ ;TT VG[V;TT JCG ;DHFJM.	**07**
		VYJF	
	A	SMdI]8[XGL H]NL ZLTM H6FJM VG[SM. 56 V[S 5NnlT IMuI VFS'lTGL DNNYL ;DHFJM.	**07**
5|`Gv #	V	CFO A™LH VG[O], A™LH SCR >GJ8"ZGL ;ZSL8 ¹MZM.T[GF ,FEF,FEFGL RRF" SZM.	**07**
	A	MCT GM A\WFZ6,SFI"l;w3F\T,8G" VMO VG [8G" VMG ;DHFJM.	**07**
		VYJF	
5|`Gv #	V	D}/E}}T RM5Z 5ZL5YG] SFI"" ;DHFJM. VG[RM5Z G] JUL"SZ6 SZM.	**07**
	A	:,L5ZL\U >g0SXG DM8ZGF :5L0 Sg8=M, DF8[RM5ZGM p5IMU ;DHFJM.	**07**
5|`Gv $	V	H~ZL VFS°lT ¹MZL CF.O™LSJ\;L >g0SXG CL8L\UGM SFI"v l;w3F\T ;DHFJM. >g0SXG CL8L\UGF 5F\R p5IMUMGL IF¹L VF5L SM. 56 V[S p5IMU 8\}SDF ;DHFJM.	**07**
	A	CF.O™LSJ\;L >g0SXG CL8L\U VG[0FI .,[S8=LS CL8L\U JrR[GM TOFJ8 :5Q8 SZM.	**07**
		VYJF	
5|`Gv $	V	V<8=F;MlGS J[JGF p5IMUMGL IF¹L AGFJM VG[V<8=F;MlGS D[8,DF\ TLZF0 XM3JFDF\ S[JL ZLT[J5ZFI K[T[;DHFJM.	**07**
	A	>g0SXG CL8L\UGF ,FEF,FE ,BM.	**07**
5|`Gv 5	V	IC 555 GM p5IMU SZLG[;LSJg; 8F.DZGL ;ZSL8 NMZM VG[;DHFJM.	**07**
	A	Z[hL:8g; J[<0L\UGF 5™SFZM ,BM VG[SM. V[S G [8\}SDF ;DHFJM. Z[hL:8g; J[<0L\UGF OFINFVM H6FJM.	**07**
		VYJF	
5|`Gv 5	V	5FZFG] pQ6TFDF5S VG[OM8M l0JF.; JF5ZL EõLGF TF5 lGI\+6GM 5lZ5Y NMZL ;DHFJM.	**07**
	A	B\0FS°lTGL DNNYL :JLr0 DM0 5FJZ ;%,FI ;DHFJM.	**07**

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