

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER – VI • EXAMINATION – SUMMER 2016

Subject Code: 3361702**Date: 11/05/2016****Subject Name: Industrial Power Control****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** Answer any seven out of ten. **14**
1. List out power devices used for industrial power control.
 2. Draw symbols for TRIAC, MOSFET.
 3. List out different turn on methods for SCR.
 4. Why opto-isolators are used?
 5. List out four industrial applications of power devices.
 6. Define duty cycle.
 7. List out different types of welding.
 8. State the function of inverter.
 9. Draw two transistor analogy circuit for SCR.
 10. State welding cycle steps.
- Q.2** (a.i) Draw internal structure of MOSFET. **03**
- Q.2** (a.ii) Explain working of MOSFET. **04**
- OR
- Q.2** (a.i) Draw SCR turn on circuit using UJT. **03**
- Q.2** (a.ii) Explain working of SCR turn on circuit using UJT. **04**
- Q.2** (b.i) Draw and label characteristic curve for SCR. **03**
- Q.2** (b.ii) Describe working of SCR with the help of sketch. **04**
- OR
- Q.2** (b.i) Draw parallel Inverter circuit using SCR. **03**
- Q.2** (b.ii) Explain the Principle and working of Parallel Inverter circuit using SCR. **04**

Q.3	(a.i)	Draw half wave control bridge converter with R-L load.	03
Q.3	(a.ii)	Explain half wave control bridge converter with R-L load.	04
OR			
Q.3	(a.i)	Draw Speed control of D.C. Motor using armature voltage control scheme.	03
Q.3	(a.ii)	Explain working of Speed control of D.C. Motor using armature voltage control scheme.	04
Q.3	(b.i)	Draw single phase Bridge Cyclo-converter.	03
Q.3	(b.ii)	Explain the working principle of single phase Bridge Cyclo-converter.	04
OR			
Q.3	(b.i)	Write a short note on D.C. static switch.	03
Q.3	(b.ii)	Explain Basic D.C. chopper circuit.	04
Q.4	(a.i)	Draw heat control using UJT and SCR for resistance welding.	03
	(a.ii)	Explain heat control using UJT and SCR for resistance welding.	04
OR			
Q.4	(a.i)	Draw step down Chopper.	03
	(a.ii)	Explain the working principle of step down Chopper.	04
Q.4	(b)	Describe function of single phase AC power control circuit using DIAC-TRIAC with neat diagram.	07
Q.5	(a)	Explain conductive Liquid level control circuit.	04
Q.5	(b)	Describe stepper motor drive circuit.	04
Q.5	(c)	Explain self commutation for SCR.	03
Q.5	(d)	Draw and label characteristic curve for TRIAC.	03
