Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**B.E. - SEMESTER – VIII EXAMINATION – OCTOBER 2012**

**Subject code: 180304 Date: 25/10/2012**

**Subject Name: Electronic System Design**

**Time: 02.30pm - 05.00pm Total Marks: 70**

## Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

| | | | |
|---|---|---|---|
| **Q.1** | **(a)** | Explain the two transistor analogy of SCR. | **07** |
| | **(b)** | State the definition and importance of EMC. Explain different E field and H field coupling briefly. | **07** |
| **Q.2** | **(a)** | Describe the forward characteristics of SCR. | **07** |
| | **(b)** | Explain the working principle of PM step motor. | **07** |
| | | **OR** | |
| | **(b)** | Explain the working principle of VR step motor. | **07** |
| **Q.3** | **(a)** | Explain the step down chopper in detail. Derive the equation for its duty cycle. | **07** |
| | **(b)** | Write a short note of PWM inverter. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | What is step up chopper? Draw and explain the flux, current and voltage waveform for it. | **07** |
| | **(b)** | Write a short note on series resonance inverter. | **07** |
| **Q.4** | **(a)** | Explain any two commutation methods for SCR | **07** |
| | **(b)** | Write a short note on Power MOSFET. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain different turn on methods for SCR. | **07** |
| | **(b)** | Write a short note on IGBT. | **07** |
| **Q.5** | **(a)** | Write short note on effect of shield on electric field coupling. | **07** |
| | **(b)** | What is SMPS? Draw & explain its block diagram. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Explain different grounding methods briefly. | **07** |
| | **(b)** | Write a short note on UPS. | **07** |

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