

**GUJARAT TECHNOLOGICAL UNIVERSITY****M. E. - SEMESTER – III • EXAMINATION – SUMMER • 2013****Subject code: 734502****Date: 15-05-2013****Subject Name: EMC in Power Electronics (Elective - IV)****Time: 10:30 am – 13:00 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** (a) Describe Electromagnetic Disturbances by Frequency Content. **07**  
(b) Describe spectrum analyzers. **07**

- Q.2** (a) Describe Electromagnetic Disturbances by Transmission Mode. **07**  
(b) Write a short note on measuring the interference voltage. **07**

**OR**

- (b) Write a short note on measuring the interference current. **07**

- Q.3** (a) Describe shielded transformers with necessary equivalent circuit. **07**  
(b) Draw equivalent circuit for determining the capacitive current of noise suppression and explain it with necessary equation. **07**

**OR**

- Q.3** (a) Draw and explain basic circuit configuration of EMI filter circuit configurations. **07**  
(b) Draw and explain equivalent circuits of common mode choke coils. **07**

- Q.4** (a) Describe worst-case insertion loss test method with necessary equations. **07**  
(b) Write a short note on Damped EMI filter for low current ratings. **07**

**OR**

- Q.4** (a) Describe impulse voltage withstand test with necessary diagram. **07**  
(b) Draw equivalent circuit for calculating conductive noise coupling with necessary equations. **07**

- Q.5** (a) Explain circuit balancing method of reduction of electromagnetic coupling reduction. **07**  
(b) Explain wiring layout method to reduce EMI coupling. **07**

**OR**

- Q.5** (a) Explain noise filter design method for voltage attenuation. **07**  
(b) Write a short note on surge protection devices. **07**

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