Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II(New course) • EXAMINATION (Remedial) – WINTER- 2015

Subject Code: 3725201 **Date: 08/12/2015**

Subject Name: System Design

Time:2:30 pm to 5:00 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)** Explain the concept of System Design in brief. **07**

(b) Describe in detail with examples about the embedded systems in **07**

1. Home Environment
2. Office Environment

Q.2 **(a)** Explain in detail the following: **07**

1. Single Layer PCB
2. Double Layer PCB
3. Multi Layer PCB

(b) Explain in about the decoupling at IC level and Board Level **07**

OR

(b) Explain in detail about the Floating Point and Fixed Point Data formats. **07**

Q.3 **(a)** Explain the Characteristic Impedance property of transmission lines on the hardware board for signal transmission. **07**

(b) Explain in detail about the I^2C Bus Interface and the generic software support for the I^2C devices. **07**

OR

Q.3 **(a)** Explain the following I/O data transfer techniques: **07**

1. Program Driven I/O Transfer
2. Interrupt Driven I/O Transfer
3. Direct Memory Access I/O Transfer

(b) Explain in detail about the basic components of any typical real time embedded system **07**

Q.4 **(a)** Explain the followings: **07**

1. Compiler
2. Assembler
3. Linker
4. Debugger

(b) Explain the need for prototyping and prototyping using FPGA platforms. **07**

OR

Q.4 **(a)** Explain in brief Hardware-Software Co-Design Methodologies. **07**

(b) Explain in brief Chemical Etching: Principles and Mechanisms. **07**

Q.5 **(a)** Explain in brief Environmental concerns in PCB industry. **07**

(b) List down the high speed hardware system design challenges and explain any one. **07**

OR

Q.5	**(a)**	Explain in detail power consumption issues in Hardware-Software Co-Design.	**07**
	(b)	Define a Real Time Embedded System and describe its characteristics.	**07**

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