Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E –IIst SEMESTER–EXAMINATION – JULY- 2012

Subject code: 1720107 **Date: 12/07/2012**

Subject Name: Embedded System

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) Answer the following questions. **07**

1. Define Tightly coupled Embedded Systems.
2. Define H/W – S/W Co-design.
3. Differentiate between Baud rate and Bit rate.
4. What is Princeton Architecture?
5. Define basic function of Stepper Motor.
6. What is Composing Memory?
7. Give memory hierarchy in brief.

(b) Answer the following questions.

1. Describe Cache mapping techniques. **04**
2. Write a note on I^2C. **03**

Q.2 (a) Explain all types of IC technology w.r.to Embedded system evolution. **07**

(b) Answer the following questions. **04**

1. Describe 'pipelining' with instruction execution stages as an example.
2. Explain Reaction Timer with an application. **03**

OR

(b) Describe Arbitration in detail and explain all its types. **07**

Q.3 (a) Write a note on all types of RT-level Combinational & RT-level Sequential components. **07**

(b) Describe Arbitration in detail and explain all its types. **07**

OR

Q.3 (a) Answer the following questions.

1. What is a Design Metrics? List all design metric parameters. **04**
2. Write a note on LCD controller. **03**

(b) Write a note on all types of Advanced RAMs. **07**

Q.4 (a) Explain Functional and non-functional requirement specification for Digital Camera example. **07**

(b) Answer the following questions.

1. List Addressing Modes and explain their execution types. **05**
2. Write in brief Real Time clock. **02**

OR

Q.4 (a) Answer the following questions.

1. What are ASIPs? Explain their types. **04**
2. Explain Range and Resolution with an appropriate example. **03**

Q.4 (b) What are the uses of Watchdog timer? Give example of ATM time out using Watchdog timer? **07**

Q.5 (a) Explain Design Productivity Gap with an Example by proving that "More designers do not increase productivity." **07**

(b) Explain Basic Architecture components of General Purpose Processor. **07**

OR

Q.5 (a) Answer the following questions.

1. Write a note on 8051 register banks and stack. **04**
2. Explain 8051 flag bits and PSW register. **03**

(b) Answer the following questions.

1. Write a note on 8051 microcontroller. **05**
2. Write a note on Firewire. **02**

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