Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – III • EXAMINATION – WINTER 2012

Subject code: 730204 **Date: 26/12/2012**

Subject Name: Embedded Systems

Time: 10.30 am – 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	**(a)**	Answer the following questions.	
		1. Define loosely coupled Embedded Systems.	**02**
		2. What is Cache-Hit & Cache Miss ?	**02**
		3. What is significance of VLIW ?	**02**
		4. Define speed up of A over B with an example of Digital Camera.	**02**
		5. Significance of 'power' in embedded system design metrics.	**02**
		6. Role of Test / Varification tools in Design technology.	**04**
Q.2	**(a)**	Explain all types of Processor Technology w.r.to Embedded system evolution.	**07**
	(b)	Explain Time-to market design metric. Derive equation for percentage revenue loss. For a product for which W= 50 weeks. Count the percentage revenue loss if the product gets launched on 26th week. **OR**	**07**
	(b)	Describe optimization of FSMD with a suitable example.	**07**
Q.3	**(a)**	Write a note on all types of RT-level Combinational & RT-level Sequential components.	**07**
	(b)	Describe all types of advanced RAM in detail.	**07**
		OR	
Q.3	**(a)**	Answer the following questions.	
		1. Explain all Addressing modes for an instruction set.	**04**
		2. Write steps of Instruction Execution. Also describe 'pipelining'.	**03**
	(b)	Draw design of General purpose processor & explain constituents of simple microprocessor architecture.	**07**
Q.4	**(a)**	Write a note on PWM. Describe how to control a DC motor with a PWM.	**07**
	(b)	Answer the following questions.	
		1. Describe roles of Assemblers, Compilers and Linkers in IDE.	**04**
		2. Write Watchdog timer with a suitable example.	**03**
		OR	
Q.4	**(a)**	Explain Functional and non-functional requirement specification for Digital Camera example.	**07**
	(b)	Explain all types of Arbitration in detail.	**07**
Q.5	**(a)**	Answer the following questions.	**07**
		1. Draw & explain EPROM internal masking process.	
		2. Write a note on I^2C.	
	(b)	Explain I/O Addressing types in Microprocessor Interfacing.	**07**
		OR	
Q.5	**(a)**	Answer the following questions.	
		1. Write a note on 8051 microcontroller.	**04**
		2. Explain 8051 flag bits and PSW register.	**03**
	(b)	Answer the following questions.	
		1. Write a note on CAN and FireWire.	**04**
		2. Write a note on 8051 register banks and stack.	**03**

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