C.U.SHAH UNIVERSITY
Summer Examination-2017

Subject Name: Embedded System Design

Subject Code: 5TE01EMD1   **Branch: M.Tech(VESD)**

Semester: 1   **Date: 24/03/2017**   **Time: 10:30 To 01:30**   **Marks: 70**

Instructions:
- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

SECTION – I

Q-1	**Attempt the Following questions**	**(07)**
a.	Define the term system.	**1**
b.	Define the term an embedded system.	**1**
c.	State the constraints consider when an embedded system is designed.	**1**
d.	State any five examples of embedded systems.	**1**
e.	State the different interrupt sources in embedded processors or controllers.	**1**
f.	Define the term RTOS.	**1**
g.	Define the term development kit.	**1**
Q-2	**Attempt all questions**	**(14)**
a)	Explain in detail different interrupt handling mechanism.	**6**
b)	Classify the embedded systems and explain each of them in detail.	**4**
c)	Explain in brief any four concepts used during design process in embedded system.	**4**
	OR	
Q-2	**Attempt all questions**	**(14)**
a)	Explain in detail source engineering tool.	**6**
b)	Explain in detail skills required for an embedded system designer	**4**
c)	Draw the diagram of the components of embedded system hardware. Explain in brief main three components embedded into embedded system.	**4**
Q-3	**Attempt all questions**	**(14)**
a)	Write short notes on "embedded processors in a system".	**7**
b)	What is the full form of IDE? Explain its features.	**7**
	OR	
Q-3		
a)	Explain in detail different challenges in embedded system design.	**7**
b)	Explain in detail with diagrams device programmer	**7**

SECTION – II

Q-4		**Attempt the Following questions**	**(07)**
	a.	Explain in brief big-endian data representation.	**1**
	b.	Explain in brief little-endian data representation.	**1**
	c.	Explain in brief Harvard architecture.	**1**
	d.	Explain in brief von Neumann architecture.	**1**
	e.	What data types does the C55x support?	**1**
	f.	How many accumulators does the C55x have?	**1**
	g.	How many types of interrupts support by ARM? State their names.	**1**
Q-5		**Attempt all questions**	**(14)**
	a)	Explain in detail with examples different addressing modes of ARM 7 processor.	**7**
	b)	Write short notes on " caches as memory system mechanisms"	**7**
		OR	**(14)**
Q-5	**a)**	Explain in brief supervisor mode, exceptions and traps w.r.to. ARM7 processor.	**7**
	b)	Write short notes on " MMUs as memory system mechanisms"	**7**
Q-6		**Attempt all questions**	**(14)**
	a)	State the steps perform by ARM7 and C55X when responding to an interrupt.	**7**
	b)	Explain in detail data flow graphs.	**7**
		OR	
Q-6		**Attempt all Questions**	**(14)**
	a)	Explain in detail CPU performance.	**7**
	b)	Explain in detail control/data flow graphs.	**7**