

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

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|------------|--|-------------|
| 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**

