CBCS Scheme

USN ☐☐☐☐☐☐☐☐☐☐   **16/17ESP/ECS/EVE/EIE/ELD13**

First Semester M.Tech. Degree Examination, Dec.2017/Jan.2018
Advanced Embedded System

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1   a.   Explain the various purposes of embedded system in detail with illustrative examples.
         (08 Marks)
    b.   What is difference between RISC and CISC processors? Give an example for each.
         (04 Marks)
    c.   What is sensor and actuator? Explain how the LED and opto coupler are used as an I/O subsystem in embedded system.   **(04 Marks)**

OR

2   a.   Explain the different on-board communication interfaces in brief.   **(10 Marks)**
    b.   Mention some of the important characteristics of embedded system and write about the different operational quality attributes.   **(06 Marks)**

Module-2

3   a.   Describe the assembly language to machine language conversion process and high level language to machine language conversion process with neat diagram.   **(10 Marks)**
    b.   What are the commonly used computational models in embedded system and explain any two model with example.   **(06 Marks)**

OR

4   a.   Explain the out of circuit programming and in system programming used in the integration of hardware and firmware.   **(10 Marks)**
    b.   Write short notes on simulators, emulators and debuggers. Also mention the advantages and limitations of simulator based debugging.   **(06 Marks)**

Module-3

5   a.   Discuss the relationship between the thumb instruction set in thumb-2 technology and the traditional thumb. Mention the various applications of Cortex-M3 processor.   **(06 Marks)**
    b.   Construct ARM Cortex-M3 processor architecture and explain its various units.   **(10 Marks)**

OR

6   a.   Give detailed description about general purpose registers in the Cortex-M3 processor.
         (08 Marks)
    b.   Explain how stack memory operations are carried out automatically in the Cortex-M3 processor and discuss two stack model also.   **(08 Marks)**

Module-4

7   a.   Construct CORTEX-M3 predefined memory map and explain with complete details.
         (12 Marks)
    b.   Explain briefly about basic syntax and use of suffixes in assembler language.   **(04 Marks)**

OR

8 a. Describe the pipeline architecture and bus interfaces based on the implementation of CORTEX-M3 processor. **(12 Marks)**

   b. Discuss briefly about memory system features in CORTEX-M3 system. **(04 Marks)**

Module-5

9 a. How SYSTIC TIMER is controlled by four registers? Explain with necessary tables. **(08 Marks)**

   b. Write the salient features of NVIC. **(08 Marks)**

OR

10 Explain the details about background, standardization, organization and benefit of CMSIS with neat diagram. **(16 Marks)**

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