USN | | | | | | | | | | | **18EC753**

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024
ARM Embedded System

Time: 3 hrs.   Max. Marks: 100

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

Module-1

1   a.   List out the difference between RISC and CISC architecture.   **(06 Marks)**
    b.   With a diagram, explain software abstraction layers execution on hardware.   **(06 Marks)**
    c.   With a neat diagram, explain ARM based embedded device.   **(08 Marks)**

OR

2   a.   With a neat diagram, explain ARM core data flow model.   **(10 Marks)**
    b.   What is CPS Register? Briefly explain the Generic program status register.   **(10 Marks)**

Module-2

3   a.   What are Data Processing Instructions? Explain Move, Shift and Rotate instructions in detail.   **(10 Marks)**
    b.   Explain the following instructions with suitable examples :
      (i) ASR   (ii) BIC   (iii) CMN
      (iv) BX   (v) LDR   **(10 Marks)**

OR

4   a.   What are load-store instructions? Explain different types of load-store instructions with examples.   **(10 Marks)**
    b.   Explain the following with examples :
      (i)   Stack operations.
      (ii)   Swap instructions.   **(10 Marks)**

Module-3

5   a.   Explain ARM-THUMB Interworking with example.   **(10 Marks)**
    b.   Explain the following THUMB instructions :
      (i)   Branch instructions.
      (ii)   Strack instructions.   **(10 Marks)**

OR

6   a.   Explain software interrupt instruction with example.   **(06 Marks)**
    b.   Explain load-store instructions with respect to THUMB.   **(10 Marks)**
    c.   Explain the following instructions : (i) LOMIA   (ii) STRB   **(04 Marks)**

Module-4

7   a.   Explain the portability issues.   **(10 Marks)**
    b.   What are the different ARM processor exceptions and associated modes?   **(05 Marks)**
    c.   What is Interrupt Latency? Explain different methods to minimize interrupt latency.   **(05 Marks)**

OR

8 a. With neat diagrams, explain IRQ and FIQ Exceptions. **(10 Marks)**
   b. Write and explain the different Interrupt Handling Schemes. (Any 5) **(10 Marks)**

Module-5

9 a. What is Firmware? Write the Execution flow and Different packages available for ARM processor. **(10 Marks)**
   b. Explain in detail, Sandstone firmware. **(10 Marks)**

OR

10 a. With neat diagram, explain cache basic architecture. **(10 Marks)**
    b. What is SLOS? Explain in detail. **(10 Marks)**

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