USN |_|_|_|_|_|_|_|_|_|_| 15MT62

Sixth Semester B.E. Degree Examination, June/July 2018
Embedded System (ARM)

Time: 3 hrs. Max. Marks: 80

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

Module-1

1 a. What is meant by ARM? List out steps present in ARM design philosophy. **(06 Marks)**
   b. Describe in short memory and pheripherals concept present in embedded system hardware. **(10 Marks)**

OR

2 a. Describe the following:
       (i) Generic program status register.   (ii) Processor modes. **(06 Marks)**
   b. Discuss core extensions concept with neat diagram. **(10 Marks)**

Module-2

3 a. Explain the following ARM instruction with example,
       (i) Comparison instruction.   (ii) Multiply instruction. **(08 Marks)**
   b. List out addressing mode for load store multiple instructions. **(08 Marks)**

OR

4 Explain the following thumb instruction:
   a. Branch instruction.
   b. Software interrupt instruction.
   c. Stack instruction. **(16 Marks)**

Module-3

5 a. Write one cycle interlock caused by delayed load use with example. **(04 Marks)**
   b. Describe the following Load scheduling process:
       (i)   Load scheduling by preloading.
       (ii) Load scheduling by unrolling. **(12 Marks)**

OR

6 Explain the following concept in Register. Allocation with example,
   a. Using more than 14 local variables.
   b. Making the most of available registers. **(16 Marks)**

Module-4

7 a. With neat diagram, explain the relationship of cache has between the processor core and main memory. **(08 Marks)**
   b. Explain main memory maps to direct mapped cache. **(08 Marks)**

OR

8 Describe the following concept in cache Lockdown :
   a. Locking a cache by incrementing the way index.
   b. Locking a cache using lock bits. **(16 Marks)**

Module-5

9 Write following concept with neat description:
   a. Assigning interrupts.
   b. Interrupt latency.
   c. IRQ and FIQ exceptions. **(16 Marks)**

OR

10 Explain the following:
   a. Nonnested interrupt handler.
   b. Nested interrupt handler. **(16 Marks)**

* * * * *