

CBCS SCHEME

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18BM72

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 ARM Processor

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain memory hierarchy of ARM processor and also explain about memory width and its types. (10 Marks)
- b. What are the software components required for embedded device? (10 Marks)

OR

- 2 a. Define pipeline. Explain the different pipelining process with example. (10 Marks)
- b. Explain: (i) Core extensions (ii) Memory management (10 Marks)

Module-2

- 3 a. Explain: (i) Arithmetic and logical instructions (ii) Comparison instruction, with examples. (10 Marks)
- b. Explain Load-Store instruction with examples. (10 Marks)

OR

- 4 a. Explain ARMV5E extensions instructions with examples. (10 Marks)
- b. Define Barrel shifter? Write the operations of barrel shifter. (10 Marks)

Module-3

- 5 a. Explain: (i) Stack instruction (ii) Software interrupt instruction (10 Marks)
- b. Explain single and multiple load store instruction of thumb instruction. (10 Marks)

OR

- 6 a. Write the overview of C compilers and optimization in detail. (10 Marks)
- b. Explain the signed and unsigned types and write the code checksums a data packet for 64 words. (10 Marks)

Module-4

- 7 a. What are exceptions? Write the function of each exception in ARM. (10 Marks)
- b. Write the different methods of returning from an IRQ or FIQ exception handle with example. (10 Marks)

OR

- 8 a. Explain the nested interrupt handler. (10 Marks)
- b. Explain reentrant interrupt handler. (10 Marks)

Module-5

- 9 a. Write the relationship between the cache, processor and main memory. (10 Marks)
- b. With neat block diagram, explain main memory mapping to a 4-way set associative cache. (10 Marks)

OR

- 10 a. What are the components of virtual memory system? (10 Marks)
- b. How the mapping pages to page frames in ARM with an MMU takes place. (05 Marks)
- c. Write short notes on: (i) Page table (ii) Transition Look ahead Buffer (TLB) (05 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.