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M. Tech. EXAMINATION, May 2019

(Third Semester)

(B. Scheme) (Re-appear)

(ECE)

MTEC613B

EMBEDDED APPLICATION BASED ON ADVANCE MICROCONTROLLER

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Briefly explain requirements and challenges of embedded system design. Also discuss the operation of Harvard processor architecture. Give its merits and limitations. **15**

2. (a) Differentiate between RISC and CISC. **7**

(b) Enlist significant features of a microcontroller. Also, explain the concept of Intel hex format object files. **8**

Unit II

3. Describe the following using examples : **15**

(i) Addressing modes of AVR

(ii) Features of AVR family microcontrollers.

4. Using suitable examples, discuss the role, significance and operation of control-word and mode of timers in AVR. **15**

Unit III

5. Define the term co-processor and architectural inhertiance. Also, explain the concept of construction cycle timings in ARM. **15**

6. Briefly describe the following : **15**

(i) ARM programmer's model

(ii) C-compiler programming.

Unit IV

7. Explain the following using examples :

(i) Interrupt Handling Schemes

(ii) DSP on ARM. **15**

8. Write short notes on the following :

(i) User Peripheral Devices

(ii) Robotics **15**