Code No: EC1546   **GEC-R14**

IV B. Tech I Semester Regular Examinations, November 2017
MICROCONTROLLERS AND EMBEDDED SYSTEMS
(Electronics and Communication Engineering)

Time: 3 Hours   **Max. Marks: 60**

Note: All Questions from **PART-A** are to be answered at one place.
Answer any **FOUR** questions from **PART-B**. All Questions carry equal Marks.

PART-A

$6 \times 2 = 12M$

1. a) What is the alternate function of port 2 of the 8051 microcontroller?

    b) Number of registers in each register bank of the 8051 microcontroller is

    A) 5   B) 8   C) 16   D) 9

2. Draw the seven segment display interface to 8051 microcontroller.

3. Draw the two phase non overlapping clocking scheme of ARM processor.

4. Write about TST and BIC instructions.

5. Define an embedded system.

6. Write the advantages of assembly language.

PART-B

$4 \times 12 = 48M$

1. a) Explain the I/O port programming by using an example program which generate the square wave.   (6M)

    b) Which ports of the 8051 are bit addressable? And what is the advantage of bit addressability.   (6M)

2. Draw and explain the interfacing of LCD with 8051 microcontroller and write a program to display the word "ECEDEPT".   (12M)

3. a) Explain the AHB multiplexed bus scheme with neat block diagram.   (6M)

    b) With a neat sketch explain ARM single cycle three stage pipeline operation.   (6M)

4. a) Draw and explain the binary encoding of ARM multiple register transfer instruction. (6M)

    b) Explain about ARM signed byte and half word data transfer instructions with binary encoding.   (6M)

5. Explain the purpose of embedded systems with examples.   (12M)

6. a) Explain the different techniques for delay generation in Embedded C programming. (8M)

    b) What is the difference between macros and functions?   (4M)

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