Code: ME6T6FE-E

III B.Tech - II Semester – Regular/Supplementary Examinations March 2018

MICROCONTROLLERS
(MECHANICAL ENGINEERING)

Duration: 3 hours   Max. Marks: 70

PART – A

Answer *all* the questions.   All questions carry equal marks

11x 2 = 22 M

1.
   a) In case of Harvard architecture, why there is no need for multiplexing the address bus and data bus.
   b) List any four external memory devices.
   c) Define bipolar mode of A/D Converter.
   d) Write about reset circuit.
   e) Define an interrupt.
   f) Draw the status word format of 8251 USART.
   g) Recall the functions of CPSR register in ARM.
   h) State the 'On-Chip Debug' in ARM9.
   i) Define RISC.
   j) List any four differences between ARM and Thumb.
   k) Write about Power down mode.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2. a) List any eight domestic applications, where
   microcontrollers would be Possibly useful.   8 M

   b) Explain the functional block diagram of microcontroller.
                                                                  8 M

3. a) Explain the following with circuits.   8 M
      i) Real Time clock   ii) oscillator circuit

   b) What are special functional registers available to user in
      8051?   8 M

4. a) Explain the internal architecture of 8251 USART.   8 M

   b) Explain the following pins of USART.   8 M
      $i) \overline{WR}$ $ii) \overline{CTS}$ $iii) \overline{RTS}$ $iv) RXD$

5. a) Illustrate the concept of ARM7 organization.   8 M

   b) What is RISC? List the features of advanced RISC
      machine.   8 M

6. a) Explain the instruction set of advanced RISC machine.

8 M

   b) List and explain the development tools used in Advance RISC machine.   8 M