Total No. of Questions : 10 ] [ Total No. of Printed

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# EI–703

**B. E. (Seventh Semester)**
**EXAMINATION, Dec., 2011**
**(Electronics & Instrumentation Engg. Branch)**
ADVANCED MICROPROCESSOR AND MICROCONTROLLERS
**(EI—703)**

*Time : Three Hours*

*Maximum Marks : 100*

*Minimum Pass Marks : 35*

Note : Attempt *one* question from each Unit. All questions carry equal marks.

**Unit—I**

1. (a) Explain the function of the following signals of 8086 : 10

   (i) ALE
   (ii) HOLD
   (iii) INTR
   (iv) NMI
   (v) HLDA

   (b) Explain the physical address formation in different addressing modes of 8086. 10

*Or*

(a) Enlist four major architectural advancements in 80486 over 80386. Explain the cache management unit of 80486. 10

(b) Draw and discuss the architecture of 8087. 10

**Unit—II**

(a) Discuss the advantages of microcontroller based system over microprocessor based systems with the help of suitable examples. 10

(b) Write a program in 8051 assembly language to generate a wave with ON time of 3 ms. and OFF time of 10 ms. on all pins of Port 0. Assume XTAL of 22 MHz. 10

*Or*

a) How many hardware interrupts does the 8051 have ? How are they activated ? 10

b) What is the advantage of stepper motor over AC motor ? Calculate the number of steps per revolution for a step angle of 7·5 degree. 10

**Unit—III**

) Explain the addressing modes in 8096 MCU. Give two uses of each mode. 10

) Describe RISC architectural features. Compare and contrast RISC and CISC architecture. 10

*Or*

) Compare the various members of 8051 family on the basis of ROM, RAM, timers and Interrupts. Enlist the criteria for choosing a microcontroller. 10

What are the features of Harvard architecture and Princeton architecture ? How can Harvard mode be configured as Princeton mode ? 10

**Unit—IV**

7. (a) Give the programmer model for the ARM. 10

   (b) How are push and pops accomplished in ARM using LDM and STM instructions ? Explain. 10

*Or*

8. (a) Describe and compare thumb instruction subset with that of ARM. How does the inter-working between the two instructions take place ? 10

   (b) Explain with examples MLA and MLAL instructions. 10

**Unit—V**

9. (a) How is SPI different from SCI in the 68HC 11 family of MCU's ? List their features and applications. 10

   (b) How is the baud rate for UART serial communication programmed in 8051 using the T1 ? Explain. 10

*Or*

). (a) State the nine most important signals of RS232 C. What are the voltage levels used in RS232 C ? 10

(b) Describe IEEE 488 (GPIB) bus signals and timings. 10