B.E. (FULL-TIME) DEGREE END SEM EXAMINATIONS
ELECTRICAL ANDELECTRONICS ENGINEERING
VI SEMESTER
EE 9351: EMBEDDED SYSTEM DESIGN (R-2008)

Time: 3 Hours   Max. Marks: 100

Answer ALL Questions
PART – A (10 x 2 = 20 Marks)

1   Define ES. What are the difficulties encountered while writing S/W for ES?

2   What are the characteristics of Embedded Systems

3   Write the two characteristics of asynchronous communication.
4   What are the features of the USB bus.

5   What are the uses of software assigned priorities in an interrupt mechanism?

6   Define: context switching.
7   What are the OS units at an RTOS kernel?
8   Name any two important RTOS.
9   Compare: 8051 micro-controller and PIC microcontroller.
10 How to use MPLAB For PIC uC

PART – B (5 x 16 = 80 Marks)

11 a   (i)   Draw the block diagram of PIC microcontroller.
        (ii) Write the special features of PIC microcontroller. Consider any one
              embedded application. Develop a interfacing diagram with PIC.

12 a   (i)   In what kind of memory would you store each of the following? Justify your
              answer.
                        o   A user-configurable name for a printer attached to a network
                            that the printer should remember even if the power fails.
                        o   The data that your program just received from the network
                        o   The program for an intelligent VCR of which your company
                            hopes to sell ten million units.
                        o   The programs for a beta version of an x-ray machine that your
                            company is about to ship to several hospitals on an
                            experimental basis.

        (ii) What is ASIP? What are advantages offered by an ASIP for designing an
              embedded system?

                                            OR
12 b   (i)   List and explain the basic hardware required to develop the embedded
              application.
        (ii) Draw the tool chain for building embedded software.

13 a   (i)   What are the built-in components available on typical modern
              microprocessor? How the each component help to develop a real time
              embedded application.
        (ii) How the microprocessor and the peripheral can be interfaced through DMA.
                                            OR

b (i) Show format of bits at the I^2C bus with diagram

  (ii) What are the different types of memory inside embedded systems? What are they used for? How to select memory devices required for a particular embedded application? List the memory devices needed for an 'advanced mobile phone system'.

14 a (i) Explain interrupt Driven I/O mechanism.

   (ii) Define: Interrupt overrun? How to prevent interrupt overrun?

OR

  b (i) Define: Preemptive and non-preemptive kernel. Draw the Thread state diagram for both kernels.

   (ii) What is semaphore? What is function of semaphore in mebedded program.

15 a (i) Compare : OS , Embedded OS , RTOS

   (ii) How to create the task in VxWroks.

OR

  b (i) Discuss the features of QNX. Is it have prioritized & nested interrupts.

   (ii) How the UNIX RTOS can be used in embedded systems?