JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. Tech I Semester Examinations, July/August - 2021
MICROCONTROLLERS AND PROGRAMMABLE DIGITAL SIGNAL PROCESSORS
(Embedded Systems)

Time: 3 Hours   Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks
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1.   Draw the architecture of ARM controller and explain the operation of each block in it.
[15]

2.a)   Performance processors, Real-time profile targeted at real-time systems and Microcontroller profile that is targeted at deeply embedded applications. List at least two features supported by each of these profiles. Also, state if a profit supports both the ARM and THUMB instruction sets. The ARM processor has got four branch instructions, namely B, BL, BX, BLX.
  b)   What is the difference between the instructions, B and BL? What is the difference between the instructions, BL and BLX in ARM?   [8+7]

3.a)   Describe the concepts of Vectored Interrupt Controller.
  b)   Explain about Interrupt Inputs and Pending Behavior in Cortex M3 processor.   [8+7]

4.   Explain about SYSTICK Timer and Interrupt Sequences of ARM Cortex-M3 processor.
[15]

5.a)   What are the functionalities of LPC 17XX general purpose parallel I/O (GPIO).
  b)   Write a short note on timers of LPC 17XX Microcontroller.   [8+7]

6.   Explain about the internal memory of LPC 17XX microcontroller.   [15]

7.a)   Briefly describe the Multi port memory of programmable DSP processors.
  b)   Explain in detail about the on chip peripherals and processor benchmarking.   [7+8]

8.a)   Briefly explain about program control unit of TMS320C6000 processor.
  b)   Describe the various on-chip peripherals of DSP TMS320C6000 processor.   [7+8]

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