BTS-V(15)-11.17-1541 Reg.No. | | | | | | | | |

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B.Tech. Degree V Semester Examination November 2017

CS 15 - 1505 ADVANCED MICROPROCESSORS AND MICROCONTROLLERS

(2015 Scheme)

Time : 3 Hours Maximum Marks : 60

PART A

(Answer *ALL* questions)

$(10 \times 2 = 20)$

I. (a) What mechanism is available in 80386 processor to execute DOS programs (16 bit programs) in protected mode environment? How does this technique restrict the memory access of one program to another?

(b) RISC processors are having large set of registers. How are RISC processors getting more space to accommodate these registers when compared to CISC processors?

(c) Explain the branch prediction technique used in Intel Pentium class of processors.

(d) What are the major issues in multi-core processing?

(e) Give details of Intel Nehalem Microarchitecture.

(f) What are the special functions registers available in 8051 microcontroller? Provide the function of each registers.

(g) What are the different addressing modes supported by 8051 microcontroller? Explain with examples.

(h) Explain the power-up reset mechanism in PIC 16F84A microcontroller.

(i) Draw the format of PIC 18F2420 status register.

(j) Write notes on Intel Skylake microarchitecture.

PART B

$(4 \times 10 = 40)$

II. (a) Explain the task switching mechanism in Intel 80386 microprocessor. (5)

(b) What are the methods in 80386 microprocessor to block unauthorized access of I/O ports? Explain. (5)

OR

III. (a) Explain how super scalar architecture is effectively implemented in Intel Pentium microprocessor. (5)

(b) Compare the features of Intel Pentium–III and Pentium-IV microprocessor. (5)

(P.T.O.)

IV.	(a)	What are the important technological features in Intel 4th and 5th generation microprocessors?	(5)
	(b)	Write notes on nanometer technology.	(5)
		OR	
V.	(a)	Explain the architecture of Intel Atom SoC.	(7)
	(b)	What are the different power reduction techniques used in microprocessors used in embedded system?	(3)
VI.	(a)	How are microcontrollers differed from microprocessors?	(3)
	(b)	Draw and explain the architecture of 8051 microcontroller.	(7)
		OR	
VII.	(a)	What are the different interrupts available in 8051 microcontroller? Draw the format of SFRs associated with interrupts.	(5)
	(b)	Draw a circuit diagram showing the interfacing of 8 leds connected to port-1 of 8051 microcontroller. Write a program in assembly language / C to glow these leds at odd positions for 15s and then even positions for 20s and to repeat this operation.	(5)
VIII.	(a)	Draw and explain the architecture of PIC 16F84A microcontroller.	(6)
	(b)	Draw data memory map of PIC 16F84A microcontroller.	(4)
		OR	
IX.	(a)	Explain PIC 18F2420 program memory organization.	(5)
	(b)	What are the different PIC 18F2420 instructions used for byte-oriented file register operations?	(5)

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