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Question Paper Code: 31083

B.E. / B.Tech. DEGREE EXAMINATION, OCTOBER 2014.

Third Semester

Information Technology

01UIT303 – COMPUTER ORGANIZATION

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Define application binary interface.
2. Differentiate Throughput and Response Time.
3. Draw the Multiplication hardware diagram.
4. Write the overflow conditions for addition.
5. Mention the 5 steps in execution of MIPS instruction.
6. What is register file?
7. Give the structure of memory hierarchy.
8. Differentiate physical address from logical address.
9. What is meant by priority grouping?
10. Compare memory mapped I/O with isolated I/O.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) State the addressing modes used in various instructions of Microprocessor with an Example. (10)

(ii) Draw the Timing diagram of memory read operation and explains machine cycle. (6)

Or

(b) (i) Compare RISC & CISC architecture. (10)

(ii) Classify the Instruction set architectures. (6)

12. (a) Explain the 4 bit binary adder with the limitations of carry propagation delay. Design a circuit that reduces the carry propagation delay. (16)

Or

(b) (i) Explain the IEEE 754 format of representing floating point numbers with examples. (10)

(ii) Show the arithmetic operation of $C = 6 - 13$ using signed 2's complement. (6)

13. (a) (i) Explain the use of multiple -bus organization for executing a three operand instruction. (8)

(ii) Elaborate the design of hardwired control unit. (8)

Or

(b) (i) Discuss the basic concepts of pipelining. (8)

(ii) What are control hazards? Explain the methods for dealing with the control hazards. (8)

14. (a) Explain and compare the types of Dynamic RAM with the block diagram. (16)

Or

(b) (i) Describe the basic operation of cache with a neat diagram. (8)

(ii) Explain the Address Translation in Virtual Memory. (8)

15. (a) Draw the typical block diagram of a DMA controller and explain how it is used for direct data transfer between memory and peripherals. (16)

Or

(b) Write short notes for the following:

(i) Interrupt priority schemes (8)

(ii) PCI & SCSI. (8)