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B.E/B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2011

ELECTRICAL AND ELECTRONICS ENGINEERING BRANCH

ANNA UNIVERSITY: CHENNAI

FOURTH SEMESTER (REGULATIONS 2008)

EE 509 - COMPUTER ARCHITECTURE

Time: 3hrs

Max Marks: 100

Answer all Questions

PART – A (10 x 2 = 20 Marks)

1. What is base register addressing mode? Where is it used?
2. Give the post fix expression for the infix expression. $(A+B)*[C*(D+E)+F]$
3. Give the input output configuration of a basic computer with a proper diagram
4. What are the status register bits? How are they set?
5. Give the characteristics of RISC
6. What are microinstructions and micro program?
7. What is an array multiplier?
8. What are the important steps in floating point multiplication?
9. What is strobe controlled data transfer?
10. Which type of computers are suitable for pipelining? Why?

PART – B (5 x 16 = 80 Marks)

11. (i) Explain any one cache memory organization (10)
(ii) Clearly enumerate the sequence of events before and after a page fault (6)
- 12.a) Multiply 24 by 8 using signed magnitude method, showing the results in each step in a table use 5 bit registers for magnitude (16)

OR

- b) Explain the restoring and non-restoring division algorithms with examples (16)

13.a) Explain the working of sequencer of a micro-programmed control with proper diagrams and tables. (16)

OR

b) i) Give the design of the control gates associated with the Address register of a basic computer. Give the required equations (8)

ii) Give the flow chart for the interrupt cycle in a basic computer and explain the working (8)

14.a) i) Define virtual memory, external fragmentation, temporal locality of reference and hit ratio. (8)

ii) Explain with a neat diagram the connections to the CPU, for a 1K memory, made of 4 128 X 8 RAM chips and one 512 X 8 ROM chip (8)

OR

b) i) Explain the priority interrupt hardware with proper sketch (10)

ii) Explain with diagram the daisy chain priority interrupt (6)

15.a) i) Explain the why and how of mapping in micro-programmed control unit (8)

ii) In an 8 bit register using signed 2's complement method, the following operation is done. Show the details of the operation and explain the result. $-169 + -232$ (8)

OR

b) (i) Explain in detail the parallel processors. (8)

(ii) Explain Direct Memory Access (8)