

MCA DEGREE I SEMESTER EXAMINATION DECEMBER 2013

CAS 2102/CAS 2104 COMPUTER ORGANIZATION

(Supplementary – 2008 Revision)

Time: 3 Hours

Maximum Marks: 50

PART A

(Answer ALL questions)

- (15 × 2 = 30)
- I. (a) Represent the number +200 and –200 in signed magnitude, 1's complement and 2's complement methods.
(b) What are the features of synchronous counters?
(c) What is the difference between Flip Flop and Latch?
 - II. (a) How can we detect an overflow in integer arithmetic?
(b) What you mean by asynchronous bus?
(c) Write a short note on interrupts?
 - III. (a) Define the terms memory latency and memory bandwidth.
(b) What is meant by the term locality of reference used in cache memory?
(c) Draw and explain the IEEE standard representation for single precision floating point numbers?
 - IV. (a) What are the various steps to execute a complete instruction?
(b) Write a note on control word and control store in the control unit.
(c) Write a note on delayed branching.
 - V. (a) Describe various operational modes in 8086?
(b) Explain the register organisation in 8086 microprocessor.
(c) Write the features of Cyrix microprocessors.

PART B

(5 × 4 = 20)

- VI. (a) Describe various types of code converters?
(b) Write the features of sequential circuits.
- OR**
- VII. (a) Write a note on universal gates and explain why we call them so?
(b) What is the application of flip flops in computer memory organisation?
 - VIII. (a) Describe various addressing modes suitable for array based operations.
(b) Explain various operations to be performed for executing the subroutines.
- OR**
- IX. (a) Write a note on functions of Stack Frame and Frame pointer.
(b) Describe the functionality of I/O Interfaces?

(P.T.O.)

- X. (a) Explain the operation of Asynchronous DRAMs.
(b) Explain the concept of virtual memory address translation.

OR

- XI. (a) A circuit outputs a digit in the form of 4 bits. 0 is represented by 0000, 1 by 0001, ..., 9 by 1001. Design a combinational circuit which takes these 4 bits as input and outputs 1 if the digit is greater than or equal to 5, and 0 otherwise. Design and implement the above combinational circuit using only AND, OR and NOT gates.
(b) Multiply the numbers -23 and +13 using booth algorithm.

- XI. Explain the control unit organisation in detail.

OR

- XIII. (a) What is meant by Data Hazards?
(b) Explain the concept of superscalar operation.

- XIV. Explain various addressing modes in 8086 microprocessor.

OR

- XV. Write the features of Pentium processors over the 8086 processor.
