

Code: 13A05401

R13

B.Tech III Year I Semester (R13) Supplementary Examinations June 2016

COMPUTER ORGANIZATION & ARCHITECTURE

(Common to ECE and EIE)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Differentiate high level language, assembly language and machine language.
 - (b) What is the role of operating system?
 - (c) List the different addressing modes used in a basic computer.
 - (d) What is an overflow in arithmetic operation of signed magnitude data? How is it detected?
 - (e) What is register transfer language?
 - (f) Write the microinstruction format.
 - (g) Define hit ratio.
 - (h) What is a strobe signal?
 - (i) Define parallel processing and pipelining.
 - (j) Differentiate between Multiprocessors and Multicomputers.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Explain about memory subsystem organization.

OR

- 3 Explain about I/O subsystem and interfacing.

UNIT – II

- 4 Discuss in detail about the memory reference instructions of a basic computer.

OR

- 5 Show the step-by-step multiplication process using Booth algorithm when (-9) and (-13) are multiplied. Assume 5 bit registers to hold signed numbers and (-9) to be the multiplicand.

UNIT – III

- 6 Design a digital circuit that performs the four logic operations of AND, OR, Exclusive –OR and NOT. Show the logic diagram of one typical stage.

OR

- 7 Explain in detail about the organization of microprogram sequencer and how it is used for address sequencing in a microprogrammed control unit.

UNIT – IV

- 8 What do you mean by virtual memory? Discuss how paging helps in implementing virtual memory.

OR

- 9 What is DMA? Explain the DMA transfer using neat diagram.

UNIT – V

- 10 Explain briefly about arithmetic pipeline with neat diagram.

OR

- 11 Discuss in detail about the multiport memory interconnection structure used in multiprocessors.
