

B.Tech II Year II Semester (R13) Regular & Supplementary Examinations May/June 2016

COMPUTER ORGANIZATION & ARCHITECTURE

(Common to CSE and IT)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
 - (a) Define the following terms.
(i) Computer Organization. (ii) Computer Architecture.
 - (b) Write any two differences between High level language and Machine level language.
 - (c) What is Indirect addressing mode and Relative addressing mode?
 - (d) What is an overflow? How does an overflow can be detected?
 - (e) Define Selective clear and Mask Operations.
 - (f) Draw the block diagram for microinstruction format.
 - (g) What are the different levels of memory hierarchy in a computer?
 - (h) What are the peripheral devices of a computer?
 - (i) What is the purpose of hardware interlock in data dependency conflict?
 - (j) Write the Characteristics of Multiprocessors.

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

UNIT – I

- 2 Explain about the Memory Subsystem Organization with neat diagrams.

OR

- 3 What are the Design issues of Instruction Set Architecture? Explain about the simple Instruction Set Architecture.

UNIT – II

- 4 Draw and explain about the instruction cycle with flowchart.

OR

- 5
 - (a) Discuss briefly about data transfer and data manipulation instructions.
 - (b) Write a note on program control instructions.

UNIT – III

- 6
 - (a) Show that the block diagram of the hardware that implements the following register transfer statement $P:R2 \leftarrow R1$.
 - (b) Construct common bus system by using multiplexers.

OR

- 7
 - (a) What are the methods for designing a control unit? Design a circuit for hardwired control unit.
 - (b) How controls signals are generated using micro-programmed control unit and explain with neat diagram?

UNIT – IV

- 8
 - (a) Analyze memory hierarchy in terms of speed, size and cost.
 - (b) Illustrate the characteristics of some common memory technologies.

OR

- 9 What is the purpose of DMA? Draw the block diagram for DMA controller and explain about DMA transfer in a computer.

UNIT – V

- 10 What is parallel processing? How one can achieve Parallel processing with single CPU? Explain in detail.

OR

- 11 What are the different types of Inter-processor Arbitration Procedures? Explain in detail with neat diagrams.