Code: 13A05401 **R13**

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)

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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←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.

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