

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)
- What is the use of program counter?
 - Explain software and hardware interrupts.
 - Define effective address.
 - Write any two main features of Booth's algorithm.
 - How does high-impedance state behaves in bus system?
 - Define pipeline register.
 - Explain the need of bootstrap loader.
 - What is an I/O interface?
 - Describe resource conflicts in instruction pipeline.
 - Define tightly coupled multiprocessor.

PART – B

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

UNIT – I

- 2 (a) How the data can be read from memory? Explain with timing diagrams for memory read and memory write operations.
- (b) Explain briefly the three categories of computer programming languages.

OR

- 3 (a) Explain briefly about the two commonly used organizations for multi-byte data organization.
- (b) What are the different addressing modes used in assembly language instructions?

UNIT – II

- 4 Explain the way that the interrupts are handled by the computer by means of a flow chart.

OR

- 5 (a) Explain LDA and STA memory-reference instructions with suitable examples.
- (b) Describe briefly about the register organization for floating point operations.

UNIT – III

- 6 (a) Define register transfer language. Explain the instructions with suitable examples.
- (b) With a neat diagram explain 4-bit binary incrementer.

OR

- 7 (a) Explain how to construct a common bus for four registers of n bits each using three state buffers.
- (b) What are the address sequencing capabilities required in the control memory? Explain.

UNIT – IV

- 8 (a) Draw and explain the block diagram of typical Ram chip.
- (b) What are the major differences between that exists between the central computer and peripherals.

OR

- 9 (a) Explain briefly about the direct mapping cache organization.
- (b) Discuss in detail about the Daisy-Chain priority interrupt.

UNIT – V

- 10 (a) What are the major difficulties that cause the instruction pipeline to deviate from its normal operations? Explain.
- (b) Explain briefly about the characteristics of multiprocessors.
- 11 (a) Describe briefly about the Flynn's classification of parallel processing systems.
- (b) Explain in detail about the Hypercube interconnection structure.
