

CS 305 COMPUTER ORGANISATION

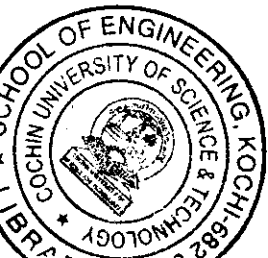
Time : 3 hours

Max: Marks: 100

Answer all questions.

- I a) Discuss the impact of a bus structure in the overall performance of a computer. (5)
 b) What is an addressing mode? Explain with typical examples, the different addressing modes available in commercial computers. (10)
- O R
- II a) A digital system has 16 registers each of with 32 bits. It is necessary to provide parallel data transfer from each register to each other register.
 i) How many lines are needed for direct parallel transfer?
 ii) How many lines are needed for transfer along common bus. (10)
 b) Explain the need for different instruction formats. (5)
- III a) Explain the role of accumulator in the CPU of a computer system. (8)
 b) Enumerate the advantages of micro programming over hardwired control (7)
- O R
- IV a) Draw the block diagram of a micro programmed control unit and explain how it can be modified to enable conditional branching in the micro program. (10)
 b) Give a typical single-bus organisation of the data paths inside the CPU. (5)
- V a) Compare the 3 different types of I/O data transfer (8)
 b) What are the different modes of direct memory access? Explain. (7)
- O R
- VI a) Explain the principle of magnetic disk storage system. Discuss the organisation and accessing of data on a disk. (10)
 b) Write notes on IEEE 488 standard. (5)
- VII a) Give the logic design for a 4-bit carry look ahead adder. (7)
 b) Explain with an example Booth's algorithm for twos-complement multiplication. (8)

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VIII a) Explain a general structure of a floating-point arithmetic unit. (5)

b) ~~Describe a basic addition algorithm~~ intend for use with the above ALU. (10)

IX a) Give the circuit of a bipolar memory cell and explain how read and write operations are performed on it. (8)

b) Give the internal organisation of a 64K X 1 dynamic memory chip. (7)

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X a) What are different cache memory mapping functions? Explain. (10)

b) What is meant by memory interleaving? (5)

XI Write precise notes on any five of the following:

i) Emulation

ii) Multibus II

iii) CD Roms

iv) Graphic CRT displays

v) Virtual memory

vi) Memory replacement policies.

vii) Daisy chaining

viii) Cycle stealing.

(5x5)
