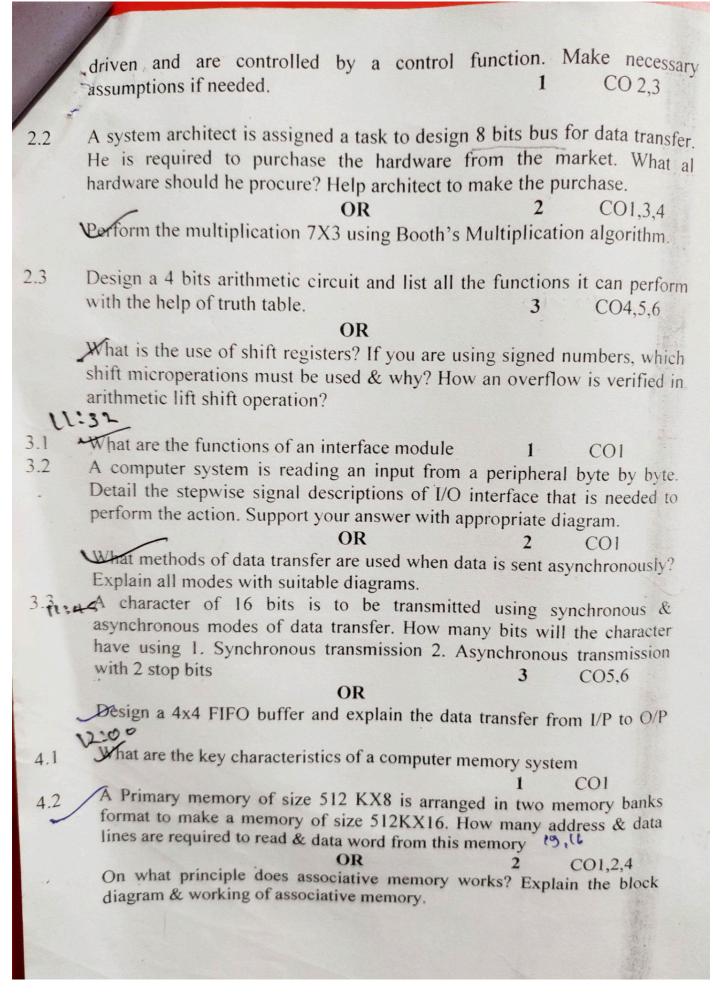
B.Tech (CS/DSML/Cyber Forensic) IV Sem.(Regular & Ex.) End-Term Examination, May-June-2022

COMPUTER SYSTEM ORGANIZATION (CSL-0458)

Max. Marks:40 Time: 03:00 hours Note: Attempt all questions. Marks 10:40 CO What should be the status of ALE signal in 1st clock period of a machine 1.1 cycle & why? CO₁ How many general purpose registers does 8086 have? Explain all of them with their functionality. OR Memory of 8086 is divided into segments. How many segments does 8086 have and what are they used for? What is the size of each segment? 1.3 How many formats of writing an instruction are there in 8086? Explain the function of each field in a 2 byte instruction. CO1.3 OR Complete the following code that adds two numbers fetched from memory of 8086 microprocessor from data segment with base address 2000H & offset of 1600H and from extra segment with Base address 1000 more than data segment with offset as 2000H . (Fill the Blanks) MOV AX, MOV DS. AX MOV, 1600 H MOV AX, MOV , AX MOV DI, 2000H MOV AX, ADD , [DI] HLT Decode the given instruction & write a control function for the same in

RTL A memory address register loads the address in register R2 in one clock period. In the same clock period lower byte from a 16 bits register R1 is transferred to accumulator. Assume all register transfers are clock



Ram chip of size 256X8 & ROM chip of size 1024X8 is given to you to 4.3 design a memory of 2KB RAM & 4 KB of ROM. How many RAM & ROM IC's you will need to design the desired memory Write a note on cache memory. Discuss various mapping techniques used to access data from cache memory with their advantages & disadvantages. 1118 What principle of pipelining helps to achieve the speed up in creating an instruction Write a note on categories of Flynn's Classification for process 5.2 architectures. OR What types of hazards are encountered by an instruction pipeline. 100 tasks are to be created using a 4 stage pipeline with processing time of 5.3 each stage as . How much time a pipelined system & a non pipelined system would take to complete the tasks. Comment on the performance of both the systems OR What different architectures exist for a MIMD computer system? Explain all of them with supporting diagrams. CO1.4 What is an addressing mode? How many odes of addressing data from memory exist? Write about all the modes with suitable examples w.r.t 8086 microprocessor. OR A Virtual memory system has an address space of 8K words, memory space of 4K words & page & block sizes of 1K words. The following page reference charges occur during a given time interval. 4,2,0,1,2,6,1,40,1,0,2,3,5,7 determine the four pages that one resident in

main memory after each page reference change if the replacement

algorithm used is 1. FIFO 2. LRU

CO1,3,4