

20234757053

Name : SRADHA KEDIA

Date and time : 30/03/2021 , 9:30 AM to 12:30 AM

Examination Roll no. : 20234757053

Name of the Programme : MCA

Semester : I

Unique Paper Code : 223401104

Title of the paper : Computer System Architecture

Email ID : 200083@cs.du.ac.in

Mobile no. : 8840502121

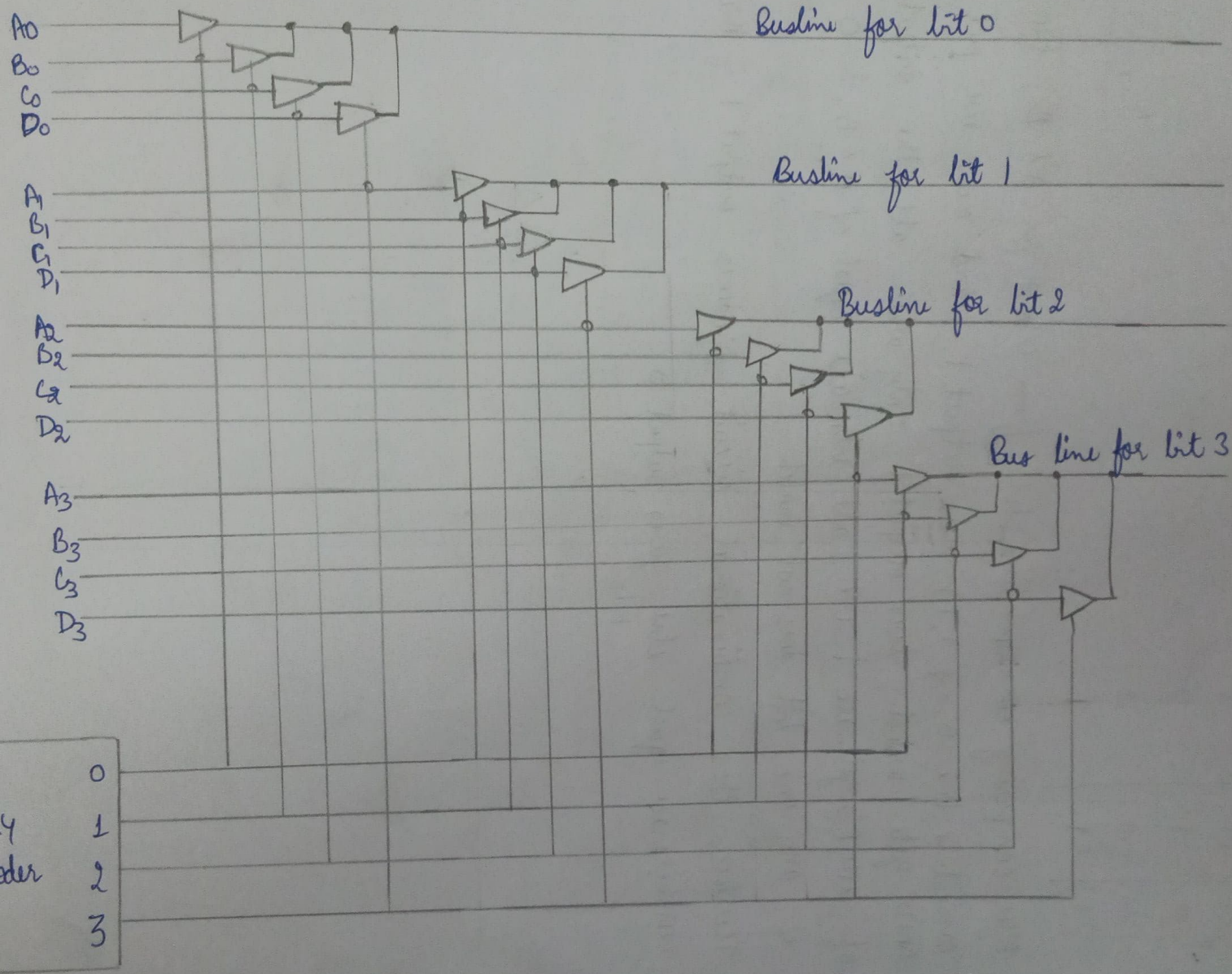
Total no. of pages : 05

Bus System for 4 bit register using tri state Buffer

Question 2-1
(a)

2(a)

from
Register
A, B, C, D



2023/4/8/2003

2

(03)

In the circuit, we used 4 registers namely A, B, C & D each of 4 bit.

Tri-State Buffer: it is a simple gate which acts as a switch if the control signal passed to it is 1, it act as a closed circuit and if signal is 0 it act as an open circuit. for 4 register each of 4 bit we need 16 tri-state buffer one for each bit.

The output lines of decoder are connected to all 4 output bits of A register so that the control signal of tri state buffers.

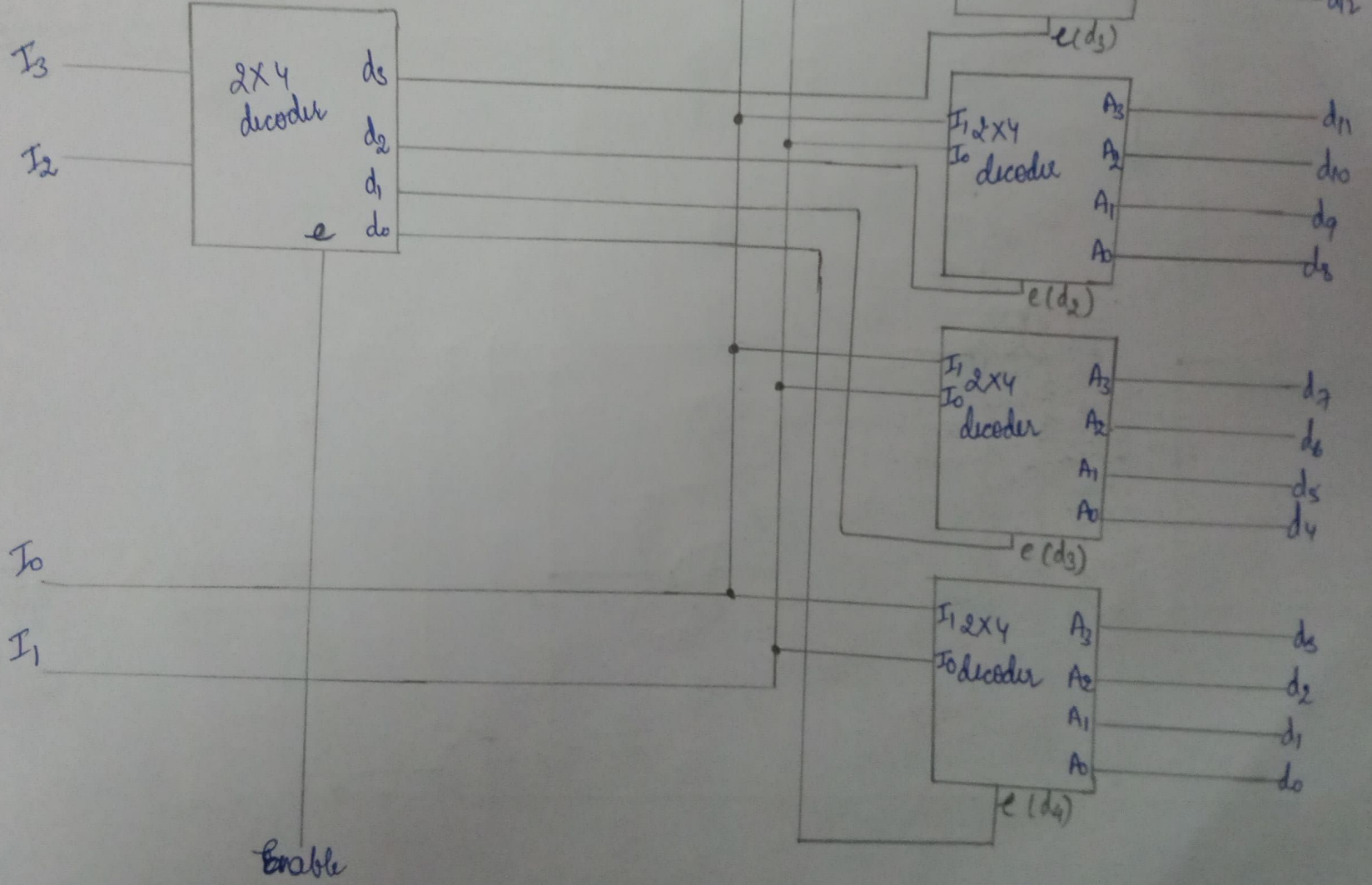
~~for eg - 1st output lines are connected to the control signal of the tri state buffers~~

for eg - 1st output lines are connected to all 4 output bits of A register so that when it is on register A's data is passed to the Bus. Similarly, second output lines is connected to all 4 outputs bit of B register & 3rd to C and 4th to D.

here, when we say output lines we are referring to the output lines of decoder.

selection lines S_0 & S_1 are used to select one register.

2(b) 4 to 16 decoder using 2 to 4 decoder



b) We can implement a 4 to 16 decoder using three 2 to 4 decoders with enable. In this circuit we have 4 input lines (I_0, I_1, I_2, I_3). I_0, I_1 are connected to 4 decoders. I_3, I_2 will go to another 2X4 decoder, then the output of this d_0, d_1, d_2, d_3 goes as enable inputs in the 4 decoders.

2023/4/15/2023