



Green University of Bangladesh

Department of Computer Science and Engineering

Course Assignment – Summer 2021

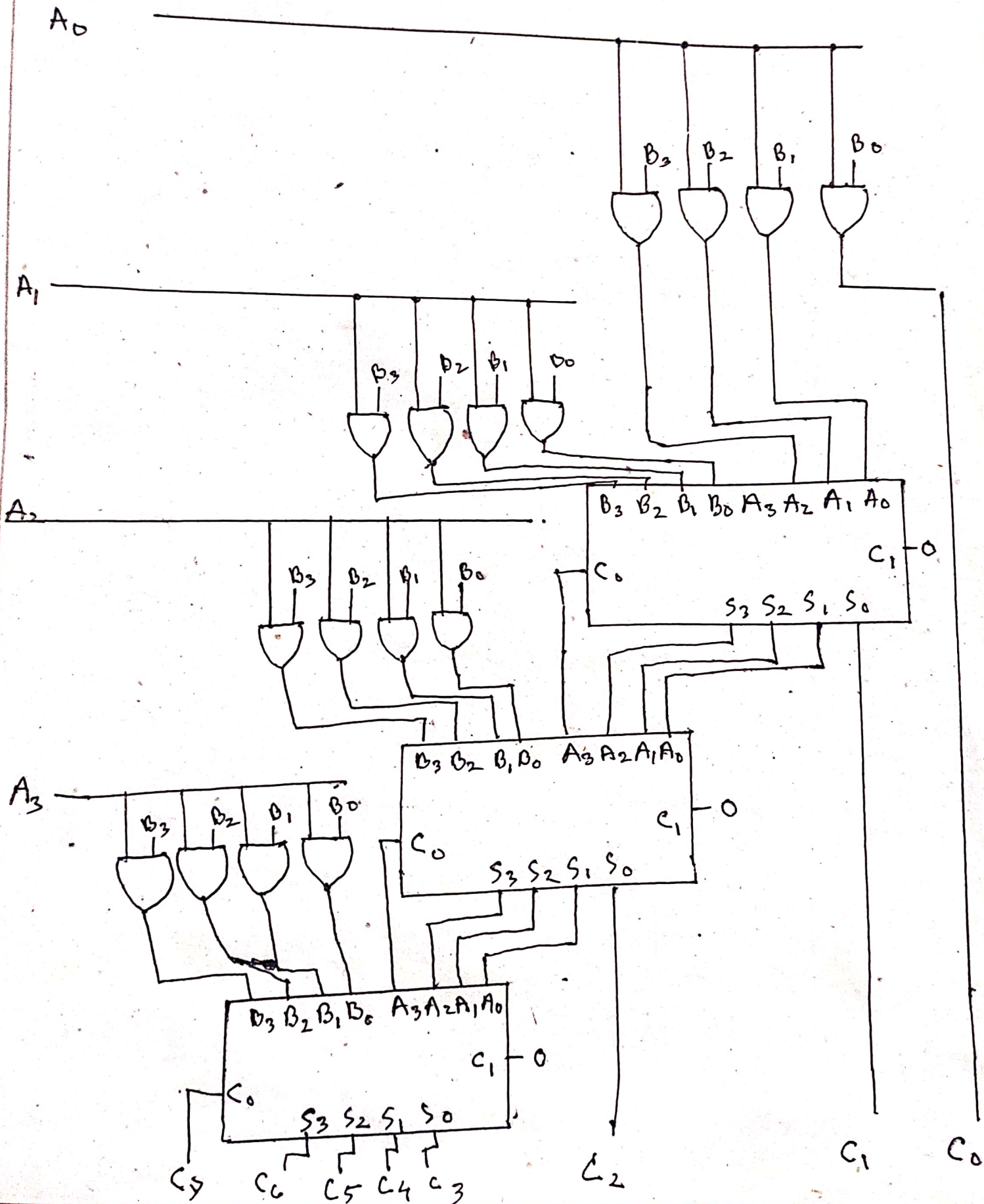
Course Title: Computer Architecture

Course Code:CSE-211

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(193002101)

Ans to the Q.no:1



(193002101)

Ans to the a.no: 02

M
000111

A
000000

Q
10101

$$1 \begin{bmatrix} 000111 \\ 000111 \end{bmatrix}$$

$$\begin{array}{r} 000001 \\ 111010 \end{array}$$

$$\begin{array}{l} 0101 - \text{LS } A, Q \\ 01010 \quad A = \bar{A} - M, Q_0 = 0 \end{array}$$

$$2 \begin{bmatrix} 000111 \\ 000111 \end{bmatrix}$$

$$\begin{array}{r} 110100 \\ 111011 \end{array}$$

$$\begin{array}{l} 1010 - \text{LS } A, Q \\ 10100 \quad A = A + M, Q_0 = 0 \end{array}$$

$$3 \begin{bmatrix} 000111 \\ 000111 \end{bmatrix}$$

$$\begin{array}{r} 110111 \\ 111110 \end{array}$$

$$\begin{array}{l} 0100 - \text{LS } A, Q \\ 01000 \quad A = A + M, Q_0 = 1 \end{array}$$

$$4 \begin{bmatrix} 000111 \\ 000111 \end{bmatrix}$$

$$\begin{array}{r} 111100 \\ 000011 \end{array}$$

$$\begin{array}{l} 1000 - \text{LS } A, Q \\ 10001 \quad A = A + M, Q_0 = 1 \end{array}$$

$$\begin{array}{r} 000111 \\ 000111 \end{array}$$

$$\begin{array}{r} 000111 \\ 000000 \end{array}$$

$$\begin{array}{l} 0001 - \text{LS } A, Q \\ 00011 \quad A = A - M, Q_0 = 1 \end{array}$$

↓
Remainder = 0

↓
Quotient = 00011

23

(193002101)

Ans to the Q. no: 3

Time for non-pipelined execution per task

$$t_n = 60 \text{ ns}$$

time for pipelined execution per task

$$t_p = 20 \text{ ns}$$

The numbers of segment $k = 5$

number of task $n = 200$

we know,

$$S = \frac{t_n}{t_p}$$

$$\begin{aligned} \text{The time for non-pipelined } T_n &= 60 \times 200 \\ &= 12000 \text{ ns} \end{aligned}$$

$$\begin{aligned} \text{time for pipelined } T_p &= (k + n - 1) t_p \\ &= (5 + 200 - 1) \times 20 \\ &= 4080 \text{ ns} \end{aligned}$$

$$\begin{aligned} \therefore S &= \frac{t_n}{t_p} \\ &= \frac{12000}{4080} = 2.94 \end{aligned}$$

(Ans.)