AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)

FINAL-TERM EXAMINATION PERMIT

for

2023-2024, Fall

ID	21-44793-1	Name	NOKIBUL ARFIN SIAM
CGPA	3.42	Program	BSc CSE
Cr. Cpl.	106	Permit No	00589294774

PARTICULARS		AMOUNT
Previous Balance	:	.00
Current Balance	:	92500.00
Other Charges	:	.00
Amount Paid	:	92500.00
Total Balance	:	.00

Checked & Verified by

ADDITIONAL REGISTRAR

Approved by

AUTHORIZED SIGNATURE

Copy Count 1

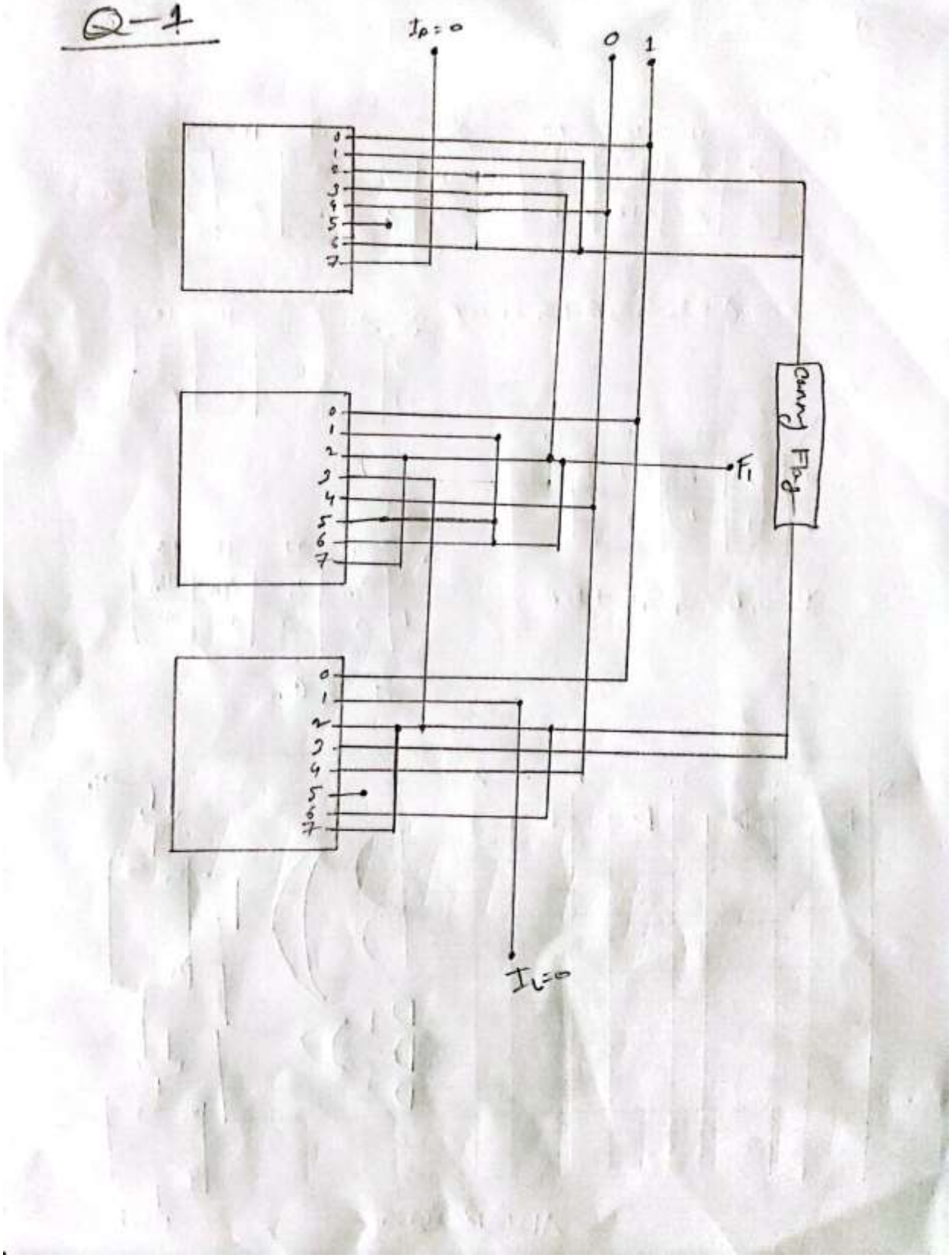
Printed on 12/15/2023 9:10:22 AM

Printed by : 21-44793-1

COURSES

CODE	COURSE NAME	CR	INITIAL
01639	WEB TECHNOLOGIES [E]	3	
00746	ENGINEERING MANAGEMENT [B]	3	
01084	DATA COMMUNICATION [G]	3	
01168	MICROPROCESSOR AND EMBEDDED SYSTEMS [L]	3	

Q-1



Ans: To Q:No-2

	A	B	D	F	Cin	H	Hex
$R_1 \leftarrow CLC\ R_4$	100	100	100	111	0	011	3
$R_3 \leftarrow R_1 + R_2$	001	010	101	001	0	000	0
Output $\leftarrow R_3$	111	000	000	000	0	000	0
$R_3 \leftarrow R_4 \text{ XOR } R_1$	100	001	011	101	0	000	0

Ans: To 'D' No-3

ID = 21-44793-1

Frequency = 3 MHz

Prescaller = 64.

$$\text{Timer0} = \frac{3\text{MHz}}{64} = 46.88\ \text{KHz}$$

operating frequency,

$$f_{pwm} = \frac{f_{timer}}{256 \times \text{prescaler}}$$

$$= \frac{46.88}{256 \times 64} = 2.86\ \text{Hz}$$

Duty cycle for OCR0A,

$$OCR0A = \frac{256D}{100} - 1$$

$$\Rightarrow 200 + 1 = \frac{256D}{100}$$

$$\Rightarrow D = \frac{201 \times 100}{256} = 78.52\%$$

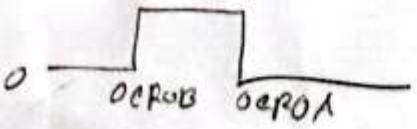
Duty cycle for OCR0B,

$$\therefore OCR0B = \frac{256D}{100} - 1$$

$$\Rightarrow 142 = \frac{256D}{100}$$

$$\Rightarrow D = \frac{142 \times 100}{256} = 55.47\%$$

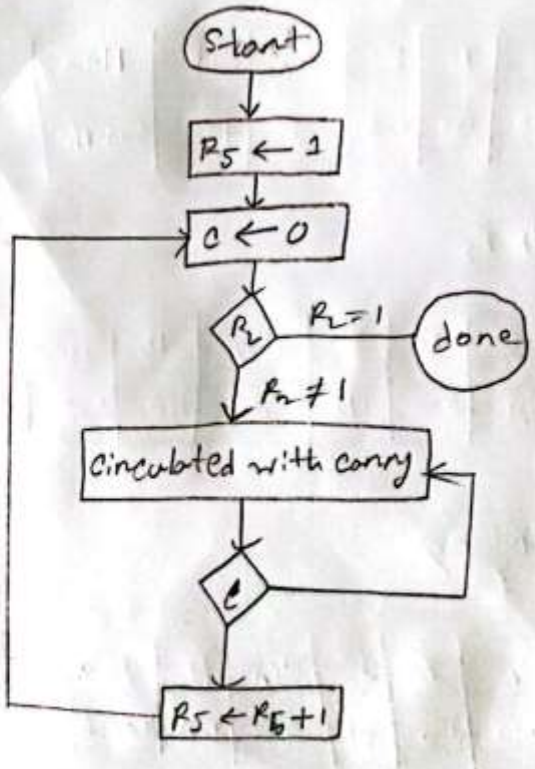
Web form,



Q-4

(a)

Time State	R_2								C	R_5
	1	1	0	1	0	0	1	0	0	1
T_1	0	1	1	0	1	0	0	1	0	1
T_2	0	0	1	1	0	1	0	0	1	1
T_3	0	0	0	1	1	0	1	0	0	2
T_4	0	0	0	0	1	1	0	1	0	3
T_5	0	0	0	0	0	1	1	0	1	3
T_6	0	0	0	0	0	0	1	1	0	4
T_7	0	0	0	0	0	0	0	1	1	4
T_8	0	0	0	0	0	0	0	0	1	4



Q-4

(b)

For phase connect pwm Mode in non-inverting mode to continue upto 225i

TCCR0A → to set the timer 0.

COM0A1 → 1.

WGM02 → 1.

TCCR0B – to set prescaler for timer and WGM02

↳

CS02 → 0
CS01 → 0
CS00 → 1

] Prescaler of 1

OCR0A → 175 → set compare value to 175

bit

7	6	5	4	3	2	1	0	
COM0A1	COM0A0	COM0B1	COM0B0	-	-	WGM01	WGM00	TCCR0A
1	0	0	0	0	0	0	1	

bit

7	6	5	4	3	2	1	0	
FOC0A	FOC0B	-	-	WGM02	CS02	CS01	CS00	TCCR0B
0	0	0	0	1	0	0	1	

Web form :-