Bit Manipulation

Please do the following exercises individually.

Control Registers

The control register of a communication module has the following layout:

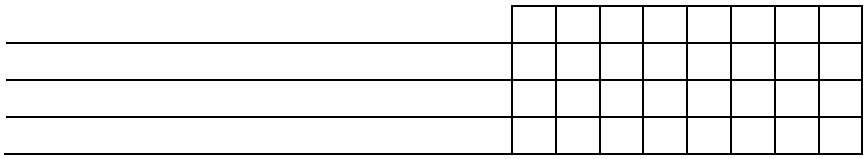
Bit	7	6	5	4	3	2	1	0
Description	CMODE		CHSIZE			SBMODE	PMODE	

Its content is 0x57.

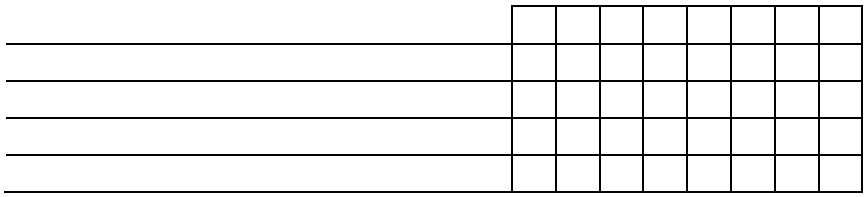
Please specify the values of the bit/group positions and masks:

- CMODE_gp:
- CHSIZE_gp:
- SBMODE_bp:
- PMODE_gp:
- CMODE_gm:
- CHSIZE_gm:
- SBMODE_bm:
- PMODE_gm:

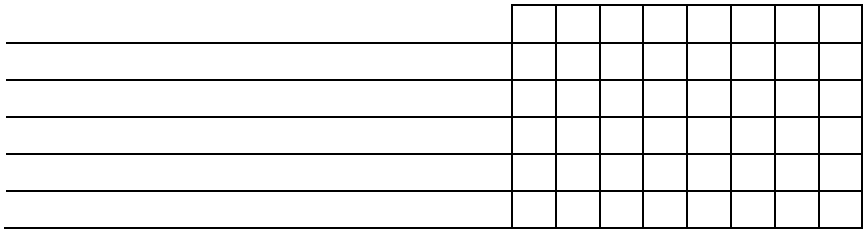
Please clear SBMODE.



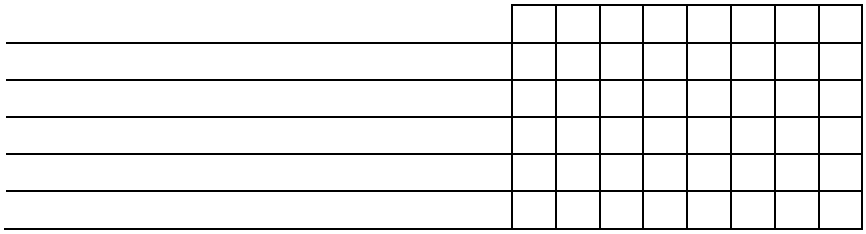
Please test if CMODE is 01 (CMODE_ SYNC_gc).



Please change PMODE to 10 (PMODE_EVEN_gc).



Write 5 in CHSIZE.



Bit Manipulation

Please do the following exercises individually.

Control Registers

The control register of a communication module has the following layout:

Bit	7	6	5	4	3	2	1	0
Description	CMODE		CHSIZE			SBMODE	PMODE	

The content of the register is 0x57.

Please specify the values of the bit/group positions and masks:

- CMODE_gp: 6
- CHSIZE_gp: 3
- SBMODE_bp: 2
- PMODE_gp: 0

- CMODE_gm: 1100 0000 = 0xC0
- CHSIZE_gm: 0011 1000 = 0x38
- SBMODE_bm: 0000 0100 = 0x04
- PMODE_gm: 0000 0011 = 0x03

Please clear SBMODE.

REG:	0	1	0	1	0	1	1	1
SBMODE_bm:	0	0	0	0	0	1	0	0
~SBMODE_bm:	1	1	1	1	1	0	1	1
REG & ~SBMODE_bm:	0	1	0	1	0	0	1	1

Please test if CMODE is 01 (CMODE_ SYNC_gc).

REG:	0	1	0	1	0	1	1	1	
CMODE_gm:	1	1	0	0	0	0	0	0	
REG & CMODE_gm:	0	1	0	0	0	0	0	0	
CMODE_SYNC_gc:	0	1	0	0	0	0	0	0	
(REG & CMODE_gm) == CMODE_SYNC_gc:	0	0	0	0	0	0	0	1	*True*

Please change PMODE to 10 (PMODE_EVEN_gc).

REG:	0	1	0	1	0	1	1	1
PMODE_gm:	0	0	0	0	0	0	1	1
~PMODE_gm:	1	1	1	1	1	1	0	0
REG & ~PMODE_gm:	0	1	0	1	0	1	0	0
PMODE_ EVEN _gc:	0	0	0	0	0	0	1	0
(REG & ~PMODE_gm) | PMODE_ EVEN _gc:	0	1	0	1	0	1	1	0

Write 5 in CHSIZE.

REG:	0	1	0	1	0	1	1	1
CHSIZE_gm:	0	0	1	1	1	0	0	0
REG & ~ CHSIZE_gm:	0	1	0	0	0	1	1	1
5:	0	0	0	0	0	1	0	1
5 << CHSIZE_gp:	0	0	1	0	1	0	0	0
(REG & ~ CHSIZE_gm) | (5 << CHSIZE_gp):	0	1	1	0	1	1	1	1