

This print-out should have 15 questions, check that it is complete. Multiple-choice questions may continue on the next column or page: find all choices before making your selection. The due time is Central time.

EE319K Chapter 5 homework

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**001** (part 1 of 1) 10 points

Which of the following statements best describes a **device driver**?

1. A device driver is a collection of software functions that allow higher level software to utilize an I/O device.
2. A device driver provides both functional abstraction and complexity abstraction of the I/O process.
3. All of these choices are correct.
4. A device driver is a set of programs that facilitate the use of an I/O device.
5. A device driver is used to separate mechanism from policy with respect to I/O operation.
6. A device driver is a set of low-level functions that input/output directly with the hardware are grouped together in a single module.

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**002** (part 1 of 1) 10 points

Which term best describes a computer where the software accesses I/O ports in the same manner as it accesses memory?

1. Hardware abstraction layer.
2. Isolated I/O.
3. Memory mapped.
4. none of these choices is correct
5. I/O mapped.
6. Embedded system.

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**003** (part 1 of 1) 10 points

Which answer best describes the procedure one follows to configure a single port pin as an input?

1. The initialization program sets the corresponding bit in the data register to 1.
2. The initialization program sets the corresponding bit in the direction register to 1.
3. The pins on the 6812 are predetermined as either input or output, so one simply uses one of the input pins.
4. The initialization program sets the 8-bit direction register to \$FF.
5. The initialization program sets the corresponding bit in the direction register to 0.
6. The initialization program sets the 8-bit direction register to 0.
7. The initialization program sets the corresponding bit in the data register to 0.

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**004** (part 1 of 1) 10 points

Which answer best describes the procedure one follows to configure a single port pin as an output?

1. The initialization program sets the corresponding bit in the direction register to 1.
2. The initialization program sets the corresponding bit in the data register to 0.
3. The initialization program sets the 8-bit direction register to 0.
4. The initialization program sets the 8-bit direction register to \$FF.
5. The pins on the 6812 are predetermined as either input or output, so one simply uses one of the output pins.

6. The initialization program sets the corresponding bit in the direction register to 0.

7. The initialization program sets the corresponding bit in the data register to 1.

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**005** (part 1 of 1) 10 points

Assume port C bit 3 is already configured as an output pin. The purpose of the following assembly code is to clear output bit 3 low.

```
ldaa  PORTC
anda  #???
staa  PORTC
```

What numerical value should you use in the ??? position in the above program? Give your answer as an unsigned 8-bit decimal number between 0 and 255.

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**006** (part 1 of 1) 10 points

Assume port C bit 3 is already configured as an output pin. The purpose of the following assembly code is to set output bit 3 high.

```
ldab  PORTC
???   #8
stab  PORTC
```

Which op code should you use in the ??? position in the above program?

1. *orab*
2. none of these choices is correct
3. *bitb*
4. *clrb*
5. *andb*
6. *eorb*

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**007** (part 1 of 1) 10 points

Assume *Object* is a 16-bit global variable. Assume ports A and B are configured as inputs. Together these two ports constitute one single 16-bit chunk of data. Which assembly language code reads the entire 16-bit data as one object. If there is more than one answer,

select the one that reads the 16-bit object all at one time.

1.
 

```
ldaa  0
ldab  1
std   Object
```
2.
 

```
ldab  1
stab  Object
```
3.
 

```
ldaa  0
staa  Object
```
4. none of these choices is correct
5.
 

```
ldx   0
stx   Object
```

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**008** (part 1 of 1) 10 points

A serial port is configured to run at a baud rate of 4800 bits/sec. The protocol is 8 bit data, 1 stop, and no parity. What is the bandwidth of this port in bytes/sec?

Answer in units of bytes/sec.

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**009** (part 1 of 1) 10 points

A serial port can be configured to run at any of the standard baud rates of 300, 600, 1200, 2400, 4800, 9600, 19200, or 38400 bits/sec. The protocol is 8 bit data, 1 stop, and no parity. The system specifications require that data should be transmitted with a bandwidth up to a maximum of 506 bytes/sec. What is the slowest allowable baud rate for this serial port in bits/sec?

Answer in units of bits/sec.

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**010** (part 1 of 1) 10 points

A serial port should be configured to run at the baud rate of 4800 bits/sec. The protocol is 8 bit data, 1 stop, and no parity. Assume the 6812 E clock, P clock and M clock are all 8 MHz.

```
ldd   #???
std   SC0BD
```

What 16-bit value should be written into the **SC0BD** register?

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**011** (part 1 of 1) 10 points

Which of the following statements best describes the action that will set the **RDRF** bit in the **SC0SR1** register on the 6812?

1. The software writes a 1 to the **RDRF** bit in the **SC0SR1** register.
2. None of these choices is correct.
3. The receive hardware is idle, ready to receive another input.
4. The receive data register, **SC0DRL**, contains new input data.
5. The receive shift register contains new input data.
6. The receive shift register is busy, currently receiving a new input.
7. The software reads the **SC0SR1** register when the the **RDRF** bit is a one, followed by the software reading the **SC0DRL** register.

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**012** (part 1 of 1) 10 points

Which of the following statements best describes the action that will clear the **RDRF** bit in the **SC0SR1** register on the 6812?

1. The software reads the **SC0DRL** register.
2. The software reads the **SC0SR1** register when the the **RDRF** bit is a one, followed by the software reading the **SC0DRL** register.
3. None of these choices is correct.
4. The receive shift register contains new input data.
5. The software writes a 0 to the **RDRF** bit in the **SC0SR1** register.

6. The software writes a 1 to the **RDRF** bit in the **SC0SR1** register.

7. The receive data register, **SC0DRL**, contains new input data.

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**013** (part 1 of 1) 10 points

Which of the following statements best describes the action that will set the **TDRE** bit in the **SC0SR1** register on the 6812?

1. The software writes a 1 to the **TDRE** bit in the **SC0SR1** register.
2. The transmit shift register is busy, currently sending a new input.
3. The transmit shift register finishes outputting the last data.
4. The transmit shift register, contains no data. It is empty.
5. The software reads the **SC0SR1** register when the the **TDRE** bit is a one, followed by the software writing new data to the **SC0DRL** register.

6. The transmit data register, **SC0DRL**, contains no data. It is empty.

7. None of these choices is correct.

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**014** (part 1 of 1) 10 points

Which of the following statements best describes the action that will clear the **TDRE** bit in the **SC0SR1** register on the 6812?

1. The transmit data register, **SC0DRL**, contains no data. It is empty.
2. The transmit shift register finishes outputting the last data.
3. The software reads the **SC0SR1** register when the the **TDRE** bit is a one, followed by the software writing new data to the **SC0DRL** register.

4. The software writes a 0 to the **TDRE** bit in the **SC0SR1** register.
5. None of these choices is correct.
6. The software writes data to the **SC0DRL** register.
7. The transmit shift register, contains no data. It is empty.

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**015** (part 1 of 1) 10 points

Assume the analog input signal applied to ADC channel 4 is 2.21 volts. What numerical value would be returned by the following subroutine? Give your answer as an unsigned 8-bit decimal number between 0 and 255.

```
ADCIn  ldab   #4
         stab   ATDCTL5
check  ldab   ATDSTAT
         bpl    check
         ldab   ADR0H
         rts
```