

# CS609 Midterm Subjective Solved with References

Year: 2013

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## Subjective (Year : 2013)

**Q:1**

**`(( inport((*lpt) +1) & 0x80) == 0x80)` which condition is checked? 2 marks**

**Answer:-** [page #97](#)

Condition will check whether the printing port is idle or not.

**Q:2**

**Which command used before changing the typematic and LEDS? 3 marks.**

**Answer:** [Page no: 181](#)

0xF3 used for type matic rate

0xED used for LEDS

**Explain null modem? 5 marks**

**Answer:** [Page no: 122](#)

If data is to be transferred from one computer to another through some media which can carry digital data then the modem can be eliminated and the UART on both computers can be interconnected. Such arrangement is called a NULL modem.

**Keyboard writing protocol? 5 marks**

**Answer:** [Page no: 180](#)

- Wait till input buffer is full
- Write on buffer
- Wait till output buffer is full
- Check the acknowledgement byte
- Repeat the process if it was previously unsuccessful.

**Q.1: write down the purpose of interrupt 11H.**

**Answer:**

**Page no: 161**

Interrupt 11H is used to determine the systems information. On return this service returns the systems info in AX register.

**Q.2: When we discuss flow control using RS232C. Which line is used for data transmission and reception?**

**Answer:**

**Page no:110**

RS232C is a standard for physical dimension of the connector interconnecting a DTE(Data terminal equipment) and DCE (Data communication equipment). Data is received through the RxD line. Data is send through the TxD line.

**Q.3: What the usage of coprocessor control word while testing for coprocessor?**

**Answer:**

**Page no:16**

The coprocessor control word contains some control information about the coprocessor. The bit number 7 of coprocessor control word is the Interrupt Enable Flag and bit number 8 & 9 should contain 11on initialization. The coprocessor status register stores the status of the coprocessor. Very much like the flags register in the microprocessor the Coprocessor status word can be used to determine the result of a comparison as shown in the slide.

**Q.4: Suppose we have got the status byte of LPT1 port usig BIOS function int 17H.Write the condition**

**Answer:**

17H/00H Write a character on entry

AH=00

AL=ASCII code

DX=Interface#

On exit

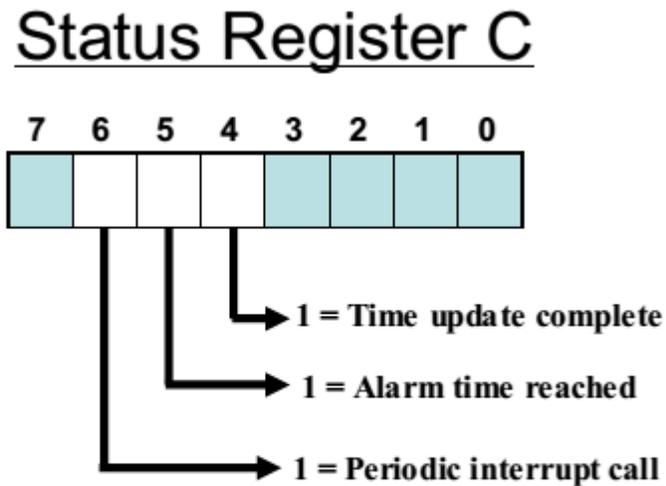
AH=Status Byte

in C language that can check the time out, transfer error and out of paper error.

**Q.5: Draw the status of Clock Status C register.**

**Answer:**

**Page no: 146**



**Q.6: Explain the purpose of UART.**

**Answer:**

**Page no:107**

The UART is a device used for asynchronous communications. UART is capable of encapsulating a byte that might be 5, 6, 7 or 8 bits wide in start and stop bits. Moreover it can attach an extra parity bit with the data for error detection. The width of stop bits may also vary.

**Write Keyboard writing protocol?**

**Answer:**

**Page no: 182**

Keyboard writing Protocol

- Wait till input buffer is full
- Write on buffer
- Wait till output buffer is full
- Check the acknowledgement byte

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- Repeat the process if it was previously unsuccessful.

**Steps involve in LPT1 and LPT2 ?**

**Answer:**

**Page no:**

```
unsigned int far * lpt = (unsigned int far *) 0x00400008 ;
```

```
unsigned int temp;
```

```
temp=*(lpt);
```

```
*lpt=(lpt + 1);
```

```
*(lpt + 1)=temp;
```

**3) How to send data to keyboard?**

**Answer:**

Similarly some data (as control information) can be send to the keyboard. The processor will write on the port 60H. The device driver will check the OBF( output buffer full bit of port 64H which remains set as long as the byte is not received by the keyboard. On receipt of the byte from the port 60H the keyboard device write a code 0xFA on the port 60H to indicate that the byte has been received properly.

**Describe the purpose of 12h interrupt and 88h? 3Marks**

**Answer:**

Int 12H is used to determine the amount of conventional memory interfaced with the processor in kilobytes. The amount of memory above conventional memory (extended memory) can be determined using the service 15H/88H.

**In flow control what is the working of D4?**

**Answer:**

First the low nibble of the byte is sent from the sender in bit D0 to D3 of the data port. D4 bit is cleared to indicate the low nibble is being sent. The receiver will know the arrival of the low nibble when it checks BUSY bit which should be set (by the interface) on arrival.

**STATUS REGISTER C of RTC. MARKS 5**

**Answer:**

The lower 4 bits of this register store a code indicating the frequency with which the RTC hardware interrupt can interrupt the processor. The next field is used to specify the time frequency i.e. the frequency with which the time is sampled and hence updated. The most significant bit indicates that after time sampling if the time has been updated in to the 64 byte RAM or not.

**What is the purpose of Interrupt ID register in UART? 3 marks**

**Answer:**

Once an interrupt occurs it may be required to identify the cause of the interrupt. This register is used to identify the cause of the interrupt.

**What are the usages of coprocessor control word in coprocessor while testing for coprocessor? 3 marks**

**Answer:**

The coprocessor control word contains some control information about the coprocessor. The bit number 7 of coprocessor control word is the Interrupt Enable Flag and bit number 8 & 9 should contain 11 on initialization.

**In LPT1 BIOS what is the meaning of " inportb\*(base +1)& 0x80);?"**

**Answer:**

In direct parallel port programming it indicates to print a file. While loop terminates when the file ends.

In case of printer the (base +1) is the printer status port. it will tell if its busy or not...

**Unsigned int far \* lpt = (unsigned int far \*)0x00400008 Direct parallel port programming LPTs swapping**

**Answer:**

Here we are accessing the base register address of LPT1 that is on the 40 segment 08 offset for more info check page # 91,92 of handbook

**In flow control what is the working of D4?**

**Answer:**

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**What is the purpose of service 1 and 2 of 14h 2marks**

**Answer:**

BIOS support for COM ports

SERVICE#1 = output characters

SERVICE#2 = read in characters

**WHAT are DTE AND DCE MARKS 2**

**Answer:**

RS232C is a standard for physical dimension of the connector interconnecting a DTE(Data terminal equipment) and DCE (Data communication equipment).

**HOW DONE DATA RECEPTION AND DATA RETRIEVAL IN RS232C MARKS 3**

**Answer:**

Data is received through the RxD line. Data is send through the TxD line. DTR (data terminal

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ready) indicates that the data terminal is live and kicking. DSR(data set ready) indicates that the data set is live. Whenever the sender can send data it sends the signal RTS( Request to send) if as a result the receiver is free and can receive data it send the sender an acknowledge through CTS( clear to send) indicating that its clear to send now.

### **What is the RTC? 3 marks**

#### **Answer:**

Real time clock is a device incorporated into the PC to update time even if the computer is off. It has the characteristics shown in the slide above which enables it to update time even if the computer is off.

### **Step to access battery powered ram. (5 Marks)**

#### **Answer:**

Battery Powered RAM is accessed in two steps

- Specify the Byte no. in 70H port.
- Read/write port 71H to get/set the value of specified byte.

### **What is the purpose of self-test mode in UART? 2 Marks**

#### **Answer:**

UART contains a self test mode which can be used by the programmer to self test the software. In self test mode the output of the UART is routed to its input. So you receive what you send.

### **What is Self-test mode of UART?. 3 Marks**

#### **Answer:**

Moreover if a single computer is available to a developer the UART contains a self-test mode which can be used by the programmer to self-test the software. In self-test mode the output of the UART is routed to its input. So you receive what you send.

### **DDL STANDS FOR?**

**RBR STANDS FOR?**

**THR STANDS FOR?**

**DLM STANDS FOR?**

**Answer:**

**Base +**

Transmitter Holding Register	THR	0
Receiver Data	RBR	0
Band Rate Divisor (Low Byte)	DLL	0
Band Rate Divisor (High Byte)	DLM	1
Interrupt Enable	IER	1
FIFO Control Register	FCR	2
Interrupt ID	IIR	2
Line Control	LCR	3
Mode Control	MCR	4
Line Status	LSR	5
Modem Status	MSR	6
Scratch Pad	SP	7

**In flow control what is the working of D4?**

**Answer:**

First the low nibble of the byte is sent from the sender in bit D0 to D3 of the data port. D4 bit is cleared to indicate the low nibble is being sent. The receiver will know the arrival of the low nibble when it checks BUSY bit which should be set (by the interface) on arrival.

**A function that will send com port. com port number will be accessed as parameter ?**

**Answer:**

The initialize () function initializes the COM port whose number is passed as parameter using BIOS services.

**About STATUS REGISTER C of RTC.**

**Answer:**

**Page no: 146**

Status register is used to identify the reason of interrupt generation

**Code of caps lock**

**Answer:**

Status byte of caps lock is 2