CS401 FINAL TERM CURRENT SOLVED SUBJECTIVE

MY PAPER: 1

TOTAL Questions: 52

Subjective: 10

OBJECTIVE: 42

NOTE : Objective mcqz where mostly from past papers specially from MOAAZ bhaiya file. PREPARE both of the subjective and objective files of MOAAZ bhaiya to get good marks.

SOME MCQZ where new I think so I wrote them down

Q:1 _____ pins of the processor is used to generate external interrupts

1 , 2 , 3 , 4

Q:2 Segment address of n is

N+1

Nx4+1

Nx2+1

Nx3+1

Q: 3 Foreground & background parameter are held by _____

Options bhool gai ☹

Q: 4 Int 10 video – "scroll up window "

OPTIONS bhol gai hu ☹ but ye inhi lines men se aya tha koi.

Answer:

```
INT 10 - VIDEO - SCROLL UP WINDOW
AH = 06h
AL = number of lines by which to scroll up (00h = clear entire window)
BH = attribute used to write blank lines at bottom of window
CH, CL = row, column of window's upper left corner
DH, DL = row, column of window's lower right corner
```

Q: 4 IN multitasking environment, which is called schedular for saving & restoring

Int 10

Int 08

Reference :-

relevant to us now. INT 08 that is saving and restoring the registers is called the scheduler and the whole event is called a context switch.

Int 01

Int2

Q:1 What is the purpose of "definate bit"?

Q:2 What is multi threading?

ANSWER:-

The ability of an operating system to execute different parts of a program, called threads, simultaneously. The programmer must carefully design the program in such a way that all the threads can run at the same time without interfering with each other.

Q-3 What is speed of multitasking?

Answer:- (Page 143)

When new threads are added, there is an obvious slowdown in the speed of multitasking. To improve that, We can change the timer interrupt frequency. The following can be used to set to an approximately 1ms

interval.

mov ax, 1100

out 0x40, al

mov al, ah

out 0x40, al

This makes the threads look faster. However the only real change is that the timer interrupt is now coming more frequently

Q:6 Write command to assemble a program?

Q:7 Which register is used by INT 10 – VESA – Set VESA Video Mode to return value.

ANSWER:-

AL is used.

AX = 4F02h

BX = new video mode

Return:

AL = 4Fh if function supported

AH = status

Q: 8 Which bit tells that data segment is used as stack SP and what is range of descriptor in protected mode?

ANSWER:-

The combination of S (system) and X (executable) tells that the descriptors are a code or a data descriptor. B (big) bit tells that if this data segment is used as stack SP is used or ESP is used.

RPL is the requested privilege level that ranges from 0-3 and informs what privilege level the program wants when using this descriptor.

Question no: 9

Mov dx , msg

Mov ah, 9

Int 0x21

WHAT will the above instructions did?

ANSWER:-

Q: 10 A code was given and we will have to call that assembly code using C.

ONE MORE PAPER: 2

Subjective Questions:

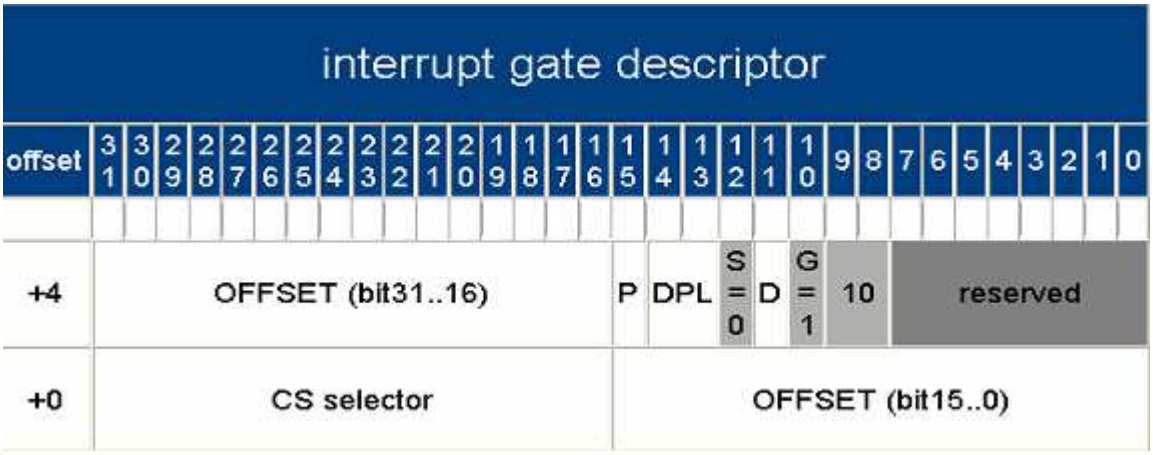
1) *Difference between 8086 processor architecture vs 386 processor architecture (Marks 3)*

2) *Question about the Speed of Multi-tasking. (Marks 3 or 5)*

   REPEATED

3) *Draw the Format of the interrupt descriptor (solution on page # 182 on handout and page # 18 on moaz file).*

ANSWER:-



4) Write program that add tow values with single label.

Q:

IN context of disk media tell how many bytes following takes

EXTENTION

DATE

TIME

ANSWER:-

```
+00 Filename (8 bytes)
+08 Extension (3 bytes)
+0B Flag Byte (1 byte)
+0C Reserved (1 byte)
+0D Creation Date/Time (5 bytes)
+12 Last Accessed Data (2 bytes)
+14 Starting Cluster High Word (2 bytes) for FAT32
+16 Time (2 bytes)
+18 Date (2 bytes)
+1A Starting Cluster Low Word (2 bytes)
+1C File Size (4 bytes)
```

Objective Questions / MCQs

Most MCQs from DB-9 (serial port) topic and from past papers

ONE MORE PAPER:3

5 marks question

1) *What is the format of interrupt gate description?*
   REPEATED

2) *What are the content at the starting positioning of the file designated as a device driver?*

3) Write the program in assembly that display Zero on the whole screen of DOS?

4) Describe the debugger briefly using single step interrupt?3 marks

10.1. DEBUGGER USING SINGLE STEP INTERRUPT

The use of the trap flag has been deferred till now. The three flags not used for mathematical operations are the direction flag, the interrupt flag and the trap flag. The direction and interrupt flags have been previously discussed.

If the the trap flag is set, the after every instruction a type 1 interrupt will be automatically generated. When the IVT and reserved interrupts were discussed this was named as the single step interrupt. This is like the divide by zero interrupt which was never explicitly invoked but it came itself. The single step interrupt behaves in the same manner.

The debugger is made using this interrupt. It allows one instruction to be executed and then return control to us. It has its display code and its code to wait for the key in the INT 1 handler. Therefore after every instruction the values of all registers are shown and the debugger waits for a key. Another interrupt used by the debugger is the break point interrupt INT 3. Apart from single stepping debugger has the breakpoint feature. INT 3 is used for this feature. INT 3 has a single byte opcode so it can replace any instruction. To put a breakpoint the instruction is replaced with INT 3 opcode and restored in the INT 3 handler. The INT 3 opcode is placed again by a single step interrupt that is set up for this purpose after the replaced instruction has been executed.

There is no instruction to set or clear the trap flag like there are instructions for the interrupt and direction flags. We use two special instructions PUSHF and POPF to push and pop the flag from the stack. We use PUSHF to place flags on the stack, change TF in this image on the stack and then reload into the flags register with POPF. The single step interrupt will come after the first instruction after POPF. The interrupt mechanism automatically clears IF and TF otherwise there would an infinite recursion of the single step interrupt. The TF is set in the flags on the stack so another interrupt will comes after one more instruction is executed after the return of the interrupt.

In interrupt gate descriptor, what does S bit tell?

The combination of S (system) and X (executable) tells that the descriptors are a code or a data descriptor. B (big) bit tells that if this data segment is used as stack SP is used or ESP is used.

What is the format of input buffer DOS?

ANSWER:-

The DOS input buffer has a special format where the first byte stores the maximum characters buffer can hold, the second byte holds the number of characters actually read on return, and the following space is used for the actual characters read. We start will an example of reading a string with service 1 and displaying it with service 9.

Can we increase the speed of multitasking? If yes, than how.

REPEATED

Cod tha pura or error find krna tha .2 marks

ONE MORE PAPER:4

1) What is the purpose of faulty instructions?

2) Diff between asynchronous and asynchronous transmissions?

3) What is overall function performing by the given two instructions?

Move cx, 0Xfff

Answer: (load maximum number in cx)

Loop $

Answer: (repeat ffff times)

3) Define mnemonics and give example?

ANSWER:-

Remembering 152 for the add operation or 153 for the subtract operation is difficult. To make a simple way to remember difficult things we associate a symbol to every number. As when we write "add" everyone understands what we mean by it. Then we need a small program to convert this "add" of ours to 152 for the processor. Just a simple search and replace operation to translate all such symbols to their corresponding opcodes. We have mapped the numeric world of the processor to our symbolic world. "Add" conveys a meaning to us but the number 152 does not. We can say that add is closer to the programmer's thinking. This is the basic motive of adding more and more translation layers up to higher level languages like C++ and Java and Visual Basic. These symbols are called *instruction mnemonics*. Therefore the mnemonic "add a to b" conveys more information to the reader. The dumb translator that will convert these mnemonics back to the original opcodes is a key program to be used throughout this course and is called the *assembler*.

ONE MORE PAPER: 5

My Subjective paper of cs 401 spring 2012

Question # 1

Give an example of short jump used in addressing?

Question # 2

In context of multitasking, which interrupt work as scheduler? What is main purpose of this interrupt?

ANSWER:-

relevant to us now. INT 08 that is saving and restoring the registers is called the scheduler and the whole event is called a context switch.

Question # 3

Write the interrupt number which is used for BIOS disk service?

ANSWER:-

Int 13 is used.

Question # 4

Name any two services provided by VESA VBE 2.0?

ANSWer :

VESA is the Video Electronics Standards Association and VBE is the set of Video BIOS Extensions proposed by them. The VESA VBE 2.0 standard includes a linear frame buffer mode that we will be using. This mode allows direct access to the whole video memory. Some important VESA services are listed below.

```
INT 10 - VESA - Get  SuperVGA Infromation
AX = 4F00h
ES:DI -> buffer for SuperVGA information
Return:
AL = 4Fh if function supported
AH = status
INT 10 - VESA - Get SuperVGA Mode Information
AX = 4F01h
CX = SuperVGA video mode
ES:DI -> 256-byte buffer for mode information
Return:
AL = 4Fh if function supported
AH = status
ES:DI filled if no error
```

Question # 5

What is the syntax of the PUSH instruction with the help of example?

Question # 6

For what purpose Global table of descriptor (GTD) is used?

ANSWER:-

The table index (TI) is set to 0 to access the global table of descriptors called the GDT (Global Descriptor Table). It is set to 1 to access another table, the local descriptor table (LDT) that we will not be using. RPL is the requested privilege level that ranges from 0-3 and informs what privilege level

the program wants when using this descriptor. The 13bit index is the actual index into the GDT to select the appropriate descriptor. 13 bits mean that a maximum of 8192 descriptors are possible in the GDT.

The GDT itself is an array of descriptors where each descriptor is an 8byte entry. The base and limit of GDT is stored in a 48bit register called the GDTR. This register is loaded with a special instruction LGDT and is given a memory address from where the 48bits are fetched. The first entry of the GDT must always be zero. It is called the null descriptor. After that any number of entries upto a maximum of 8191 can follow. The format of a code and data descriptor is shown below.

Question # 7

What are two different modes of video services of BIOS? Also differentiate b/w both of modes?

ANSWER:-

12.1. BIOS VIDEO SERVICES

The Basic Input Output System (BIOS) provides services for video, keyboard, serial port, parallel port, time etc. The video services are exported via INT 10. We will discuss some very simple services. Video services are classified into two broad categories; graphics mode services and text mode services. In graphics mode a location in video memory corresponds to a dot on the screen. In text mode this relation is not straightforward. The video memory holds the ASCII of the character to be shown and the actual shape is read from a font definition stored elsewhere in memory. We first present a list of common video services used in text mode.

Question # 8

In C and Pascal calling conventions, which registers are used as scratch when we call a function?

ANSWER:-

Which registers are used as scratch

Both standards do not preserve or guarantee the value of EAX, ECX, EDX, FS, GS, EFLAGS, and any other registers.

Question # 9

Consider the following pseudo code for it.

If (al>cl) AND (bl>al>

{

Dx=1

}

Question # 10

Describe debugger briefly using single step interrupt?

REPEATED

Question # 11

Write down instruction for data movement and arithmetic operations in Motorola 68K processor?

Question # 12

What are different register setting for memory allocation using INT 21-service?

<<<<<<<Best of luck>>>>>>>