

Group A

[3 + 2 + 5 marks]

Q1

You are given the contents of first 15 bytes of physical memory. Where will CPU jump to, upon int 2 signal?

0x25

0x5C

0xD1

0x98

Give offset, segment and physical address in hex.

0xBB

0x05

Q2

Identify error in the following instruction, if any
in ax, 328h

0x12

0x34

0x05

0x03

Q3

Write an ISR that can be hooked into a hardware interrupt. Within the ISR body, just put value 5 in variable [temp]. Standard ISR template should be followed.

0x2B

0x36

0x14

0x00

0x07

Q1

offset 0305h, segment 362Bh, physical 365B5h

Q2

With immediate operand, only one byte port number can be used, equal or below 255 or FF hex

Q3

myISR:

mov byte [temp], 5

mov ax, 20h ; eoi command

out 20h, ax ; send to PIC

iret

Group B

Q1

How many bits of address bus are used to send port number?

Q2

How PIC deals with multiple interrupt signals arriving at the same time?

Q3

Find error in the following code if any

```
mov dx, 55h
```

```
out dx, 20h
```

Q4

Suppose you have already written an interrupt handler, starting at offset newISR. Write code to hook this handler into int 13h.

[1 + 2 + 2 + 5 marks]

Q1

16 bits

Q2

PIC uses priority scheduling. IRQ 0 has highest priority, 7 is lowest. Higher priority interrupt is forwarded to cpu, lower priority is put in waiting state.

Q3

For out instruction, when DX contains destination port number, source operand can only be AL or AX.

Q4

```
mov ax, 0
```

```
mov es, ax
```

```
cli
```

```
mov [es:19*4], newISR
```

```
mov [es:19*4+2], cs
```

```
sti
```