QUESTION=paper, MARKS=0.10, CATEGORY=MATH

Some useful references for questions in this Quiz.

TMOD register at BYTE address 89H								
Bit No.	7	6	5	4	3	2	1	0
Timer:	T1				T0			
Bit Name	G1	C/T1	T1M1	T1M0	G0	C/T0	T0M1	T0M0

TCON register at BYTE address 88H								
Bit No.	7	6	5	4	3	2	1	0
Bit Name	TF1	TR1	TF0	TR0	IE1	IT1	IE0	IT0
Bit Addr	8F	8E	8D	8C	8B	8A	89	88

ANSDESC=

Because these are destination addresses for interrupt routines

===

QUESTION=fillblanks, BLANKS=1, CATEGORY=MEDIUM

Assume the oscillator crystal frequency in 8051 to be 12MHz. Determine the time taken (in micro-seconds) to execute the instruction `MOV R1, #20H`.

Note: `MOV Rx, #xxH` instruction takes 1 machine cycle;

BLANK=text, MARKS=2.0, ANSWER ='1'

ANSDESC=

1 machine cycle is 12 clock cycles. Time per cycle is 1/12e6. Hence, 1 machine cycle is 1e-6 or 1 micro-seconds.

===

QUESTION=numeric, MARKS=1.00, CATEGORY=MATH

How many machine cycles of delay will be generated by calling the function `Delay` ?

Note: `MOV Rx, #xx` instruction takes 1 machine cycle; `DJNZ Rx, Label` takes 2 machine-cycles.

```
Delay: MOV R1, #255

Here : DJNZ R1, Here
```

```
RET
```

ANSWER=[[511.0, 511.0],[513.0, 513.0],[516.0, 516.0]]

ANSDESC=

2 x 255 + 1 without including RET/ACALL ; 513 when considering RET; 516 when considering all overheads

==

QUESTION=paper, MARKS=1.00, CATEGORY=MATH

Why should we avoid writing our program code in initial memory locations (0x0003 -

0x0032h) ? Click a picture to submit your answer.

ANSDESC=

Because these are destination addresses for interrupt routines

==

QUESTION=paper, MARKS=2.00, CATEGORY=MATH

Which port(s) of 8051 is(are) used by the CPU to communicate with external memory ? In this case, how is the 16-bit address mapped to the port(s) ?

Click a picture to submit your answer.

ANSDESC=

They should know that P0 and P2 are involved in external memory communication.

==

QUESTION=paper, MARKS=1.00, CATEGORY=MATH

What is the effect of the following instruction ?

```
      SETB 8EH
```

Click a picture to submit your answer.

ANSDESC=

Starts Timer 1.

==

QUESTION=paper, MARKS=2.00, CATEGORY=MATH

Suppose you want to use the 8051's timer to time the duration of 1 hour. What mode should you set the timer to be in? Why?

Click a picture to submit your answer.

ANSDESC=

===

QUESTION=paper, MARKS=3.00, CATEGORY=MATH

Write an 8051 program to generate a 12 kHz square wave on P1.2 using Timer 0. Click a picture to submit your answer.

ANSDESC=

===

QUESTION=paper, MARKS=1.00, CATEGORY=MATH

Is `RETI` different from `RET` ? If so how ? Click a picture to submit your answer.

ANSDESC=

===

QUESTION=paper, MARKS=1.00, CATEGORY=MATH

By default, when a serial port interrupt and an external interrupt connected to INT1 occur at the same time, the serial port interrupt would only be serviced by the 8051 after the external interrupt has been serviced. How do you set the 8051 to service the serial port interrupt first when both interrupts happen at the same time?

Click a picture to submit your answer.

ANSDESC=

==

QUESTION=paper, MARKS=1.00, CATEGORY=MATH

The **IE** and **IP** registers have been initialized to the following values:

IE = 10001111

IP = 00001110

Suppose that a timer 0 interrupt, a serial port interrupt, and an external INT1 interrupt all occur at the same time. Which one would be serviced first? Why?

SFR IP at byte address B8H

Bit No.	7	6	5	4	3	2	1	0
Bit Addr	BF	BE	BD	BC	BB	BA	B9	B8
Bit Name	U	U	U	PS	PT1	PX1	PT0	PX0

SFR IE at byte address A8H

Bit No.	7	6	5	4	3	2	1	0
Function	IE	U	U	SI	TF1	Ex1	TF0	Ex0
Bit Addr	AF	AE	AD	AC	AB	AA	A9	A8
Bit Name	EA	-	-	ES	ET1	EX1	ET0	EX0

Click a picture to submit your answer.

ANSDESC=

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