Solutions 2

Question: Peripherals

a) Port B pins 0 to 7
b) By having unused peripherals disabled we decrease power consumption
c) 0x4002 1000
d) 0x14
e) bit 18
f) 0x4800 0400
g) 0x14 or 0x18
h) Table 18 of the datasheet shows it to be 25 mA

1 x 8 = 8

Question: History

a) What does the story of the invention of the light bulb warn us about history? (1)
History is often not clear-cut. (might include: “history” often not accurate, influenced by PR, etc)
b) What device that was used in computing was derived from the light bulb? (1)
Vacuum tube or valve.
c) The state of the technology at the time meant that the next logical development was the microchip. (2)
d) Renting of use of computing time. (1)
e)
- mechanical computer
- electro-mechanical computer
- transistor
- integrated circuit
- integrated microprocessor

All correct: (2) Mostly correct: (1)

f) Low switching speeds, high power consumption (2)
g) Vacuum tubes had a short lifespan (1)
h) Fairchild grew out of Shockley.
AMD and Intel grew out of Fairchild (2)

Bonus:

Holds the value which the stack pointer (R13) is initialised with. (2)

Marked out of: 20
Available marks: 22

Alot of people calculated the current to be 20mA
Any of them state how they got that figure? What table / calculation? - JG
a few did will have to check and copyt it, and one gave page reference with answer (+/- 20mA (pg. 76).)
- max current = (3.6 +0.3)/150 = 26 mA also common figure

I got max current answers mostly to be 22mA by a similar calculation to above. except going 3.3/150=22mA. And a couple of 20mA. -JM

I did use the word absolute maximum rating in the question, so I believe that there's isn't ambiguity here. The figures from page 76 refer to what current a pin can sink/source in order to still be at acceptable logic high/low levels.
The 3.3/150 people are trying to calculate the current drawn by an LED (not what the question asked) and they are doing it incorrectly. They have not catered for the LED voltage drop. Real equation would be something like (3.3-1.7)/150 = 10.6 mA. Again, that's not what the question asked. (I'm disgusted that 2nd year electrical engineers don't know about diode drop…..)
- JG

Otherwise, mostly well answered. People still seem to be having trouble being concise though, and a couple of misunderstandings of "business model". Some people thought you meant "business model" as in a computer geared towards business people, not the ideology of doing business. Also a couple of other misunderstandings in the history section but mostly due to not reading/understanding the question properly. -JM

I found this tutorial better than the last in general. Question 1 was well answered, but not so much question 2. In general, I think some of the questions themselves were pretty wide to interpretation to be honest (as JM pointed out above) and question 2A. -TB

For future reference, you're welcome to mark an answer correct if you believe that it is correct given a wide or ambiguous question. -JG