PICAXE Module Questions

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Read through the PICAXE Getting Started manual (picaxe_manual1.pdf) and answer the following question. The answers must be cut and paste from the .pdf file to your word processing document.

Part 1

1. What is a microcontroller?
2. List the advantages of using microcontrollers in a product design.
3. List some of the applications microcontrollers are used in.
4. What programming language does the PICAXE use and why?
5. Other than BASIC, how can the PICAXE be programmed?
6. What is a mechatronic system?
7. What is an input transducer?
8. List some input transducers.
9. What is an output transducer?
10. List some output transducers.
11. What does the PICAXE bootstrap code do?
12. Identify the five things that are required to use the PICAXE system.
13. What operating system is required to run the software?
14. How does the download cable connect to the computer?
15. What are the four sizes of PICAXE?
16. For the 18 pin PICAXE, what are the 3 variants?
17. What variants can do higher resolution ADC?
18. What variants can do the PWM motor control?
19. On the computer, what are the 9 pin serial ports identified as?
20. List the battery configurations that are allowed and what isn't allowed.

Part 2

21. Draw and label the 7805 voltage regulator circuit. Also draw and label the large component.
22. Draw out the PICAXE 18X minimum operating circuit and label the pins on the chip.
23. What must be done to the Reset pin?
24. What does it mean to have a microcontroller 'over-clocked'?
25. Draw the minimum download circuit showing how it hooks up to the PICAXE using the straight header pins and how it connects to the computer.
26. Using the above diagram, create a table showing the connections from the PICAXE to the computer.
27. What is a hard reset and what are the steps?
28. What are the main categories for a download checklist?
29. Identify the three types of memory and list some of their characteristics.
30. What are general purpose variables?

31. Who is the flowcharting method of programming designed for?
32. What is the drawback of this method of programming?
33. What is Basic Simulation?
34. What is the maximum current the PICAXE microcontrollers can source or sink on the output pins?
35. What component must be used to source higher current output devices?
36. Draw how a motor can be connected to an output pin.
37. Draw how a digital input must be connected.
38. For an analogue input, what caution must be observed?
39. Identify and describe the three main components of the PICAXE system.

What does the apostrophe indicate?

<u>Part 3</u>

40. What does the colon indicate?
41. What is the difference between wait and pause?
42. What is white space and how does it relate to good programming techniques?
43. What programming technique can be used when part of the program has to be repeated?
44. What command is recommended to play musical tunes?
45. Draw the schematic symbol for Piezo Sounder.
46. Name three digital sensors that could be used as an input.
47. When using analogue sensors, what is the number range that can be used to represent a varying voltage signal?
48. List three analogue sensors.
49. What does the debug command do?
50. What does the Sertxd command do?
51. Define bit, byte, LSB, and MSB.
52. What does the **let pins** command do?
53. What are Sub-procedures and why are they used?
54. List all of the PICAXE 18X commands.