1)Name at least 4 places around your house that you may find a microcontroller.

Any digital Television

Microwave Oven

My N64

Calculator

Dish Washer

2) Draw the 6 flowchart symbols and their functions.

 "Ill be back"

Terminator not to be confused with

Values are Start Stop And Return

begins and ends the function, Return used at the end of the function to go back to the function that called it. Removing the Stop terminator indicates a infinitely repeating loop.

(the book doesn't mention that return can exist many times within a function especially functions with more than one conditional to return multiple values)

Process Used to indicate internal calculations or additional processing of data

Descision a binary decision consisting of a yes or no outcome

Input Output Any I/O operation such as reading or setting pins files network packets ETC.

Function call Called Functions, used to break up a program into smaller componants

Connector Connects different sections on a page or sections spread out between pages

3) What is the website address for the Arduino homepage?

http://arduino.cc/en/Reference/HomePage

4)Name 6 different data types and their size in memory.

* int = 16 bit
* char = 8 bit
* float = 32 bit
* bool = 8 bit
* word = 16 bit
* string = 120 bit

5) Store the word “Percent” in memory two different ways.

* char STR[7] = {P,e,r,c,e,n,t};
* char STR[] = "Percent";

6) Declare the variable called number to hold 6 floats and initialize them to zero.

* float number [6] = 0;

7)When you store a string in memory what is placed at the end of the string and why?

* \0 or the end of string marker
* lets the code know when to stop reading characters

8) What hex ASCII values are used to store the word “Hello” in memory?

* 0x48, 0x65, 0x6C, 0x6C, 0x6F

9)What is the name given to your program code?

* sketch

10)What operations are performed in the function setup() ?

* Void Setup: for configuring the MC's Pins
* Void Loop: infinite loop that will execute the program and function calls

11) Setup pin 5 for output and pin 11 for input.

Void Setup ()

{

pinMode(5,OUTPUT);

pinMode(11, INPUT);

}

12)What are the two ways to place comments in your program?

* // Comments out the line
* /\* STUFF \*/ comments anything between the opening and closing markers including multiple lines

13)What is #define used for ?

* Defines constant values when the program compiles that do not take up space in memory

14)What is #include used for ?

* Includes external function libraries in the code

15)Describe the two different types of scope of variables and where you place them.

* global: can be accessed or changed by anything below it within the program
* local: can only be accessed inside of the function in which it was declared

16)What is the prefix used for declaring a number as binary?

* B

17)What is the prefix used for declaring a number as hexadecimal?

* 0x

18)What is DDRx used for and what is a 0 and a 1 used for in it’s declaration?

* DDRx is the Data Direction Register. It determines the direction of a pin group
* a 0 is output and a 1 is inputx

Try NOT to use a calculator.

int ans1 = 3, ans2 = 5, ans3 = 4;

19) ( 4 \* ans2 + 4) \* 3 /2 = [36]

20) ans3 / 2 \* ans1 + ( ans2 \*ans1 + 1 / ans3) =

6+15.25 = 21.25

21) Describe the 6 comparison operators.

* == : true if both sides are the same
* !=: true if both sides are different
* < : true if the left number is smaller than the right
* >:true if the left number is greater than the right
* <=:true if the left number is smaller than the right but also returns true if both numbers are equal
* >=: true if the left number is greater than the right but also returns true if both numbers are equal

22)What is the difference between = and == ?

* = Assigns a value
* == Compares two values to see if they match and returns a true or false

23)Draw the flowchart symbol for the if statement.

24) In the expression if(expression) expression can only evaluate to a \_\_\_\_\_\_ or \_\_\_\_\_\_\_ .

* True or False

25) Using the if statement, if you have more than one statement to execute it must be enclosed within

what?

* Curley Brackets

26)Describe what will happen if the following code is executed. Be detailed.

if(switch1 = 1)

{

PORTL = 0x75;

}

else

{

PORTL = 0x33;

}

There is no comparison only an assignment so provided there is no error in setting the variable switch1, the if statement will always return true, and PORTL's DDRx will always be set to 0x75 regardless of the intended switch position.