University of Asia Pacific

Department of CSE

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Answer to the Q.No.1 (a)

*)Peripherals: Devices that are external to the ~~main~~ processing function of the computer ~~is~~ are peripherals. Like, HDD, SSD, RAM, CPU, Power supply these are main components of computer. Devices that are external from this i.e. mouse, keyboard ~~are~~, etc are peripherals.

*) Interfacing: Interface is the interaction point between software and computer hardware or peripheral devices. Like hardware interface ~~i.e.~~, and software interface. i.e. RAM ↔ CPU, OS ↔ CPU.

Answer to the Q.No.1(b)

The given statement is "Peripheral & Interfacing refers to the same thing in computer science". I strongly disagree with this statement.

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Peripherals means various components or devices that are connected to the main processing function of the computer. Peripherals are I/O devices.

An interface is a concept that refers to a point of interaction between objects and components, and this is applicable at the level of both hardware and software. i.e. RAM→CPU, OS↔CPU.

So basically these two aren't same ~~Their~~, they ~~relationsh~~ have a relationship of interaction. Interface interacts with peripherals to get input and sends them to CPU for computation. And upon receiving output from CPU interface again interacts with peripheral to deliever the output.

Answer to the Q. No. 2(a)

In digitalWrite() we can only supply the pin number and ~~tell~~ execute the command only HIGH/LOW. But what if we want to create a led fading effect? This is where analogWrite() comes to use. Along with pin-number this function takes a ~~value~~ continuous value as parameter. So we can start from 0(led off) and gradually increase in to 255 (max brightness of led) and can do vice-versa. So basically when we need to use a continuous value operation like mentioned above we use analogWrite().

Sketch code:

```
 int pin=13;
 void setup(){
   pinMode(pin,OUTPUT);
 }
void loop(){
  for(int value=0; value<=255; value+=5)
    { analogWrite(pin, value); }
 }
```

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Answer to the Q. No. 2(b)

~~Prototyping function~~

function prototyping is declaring the ~~vari~~ function name with returnty and parameters ~~ca~~ if needed, above the void setup() and and defining the function body at the last of code that is aften void loop(). Prototyping increases readibility due to it's declaring and defining method, cause if you define 10 function above the main function then it's hard to understand. Prototyping makes it easy to understand.

Ex:

```
int sum(ind x, int y); //prototyping
void setup(){
        // statement;
    }
void loop(){
      int vab= sum(5,6);
   }
int sum(int x, int Y){ // ~~dec~~ defining.
      return x+y;
  }
```

~~Ans~~

If we want to print something we ~~x~~use serial ports. To use it we initiate with the command Serial.begin(9600);

Module ~~Type 1~~: ~~Using~~

Module 1:

Using 1 parameter.

→ Serial.~~Print~~print(78) ;//prints 78

→ Serial.~~Print~~print(4.5768); // prints 4.57

→ Serial.~~Print~~print("p"); // prints P

→ Serial.~~Print~~print("Hello"); // prints Hellow

Module 2:

Using 2 parameters.

→ Serial.print(78, BIN); //converts 78 to ~~B~~ binary and then prints it. prints "1001110"

→ Serial.print(78, OCT); //converts 78 to OCT and prints it. prints "116"

→ Serial.print(78, DEC); // converts to DEC and prints it. prints "78".

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→Serial. ~~Paint~~ print (78, HEX);// converts 78 to hexadecimal and prints it. prints "4E"

→~~8~~Serial. print(78.1234, 2);// rounds the value to 2 decimals after the decimal point and prints it. prints "78.12"

→Serial. print(12.1234, 0);// rounds to the 0 ~~p~~ after decimal point an prints it, prints "12".

Answer to the Q.No.3(a)

~~There are 5 bit~~

To do bitwise operation I'll choose bitwise operator ~~and will only choose two functions~~

~~for~~

Operator.	Sign	Operation for A=2 and B=3
Binary and	&	$A\&B = 2 = \boxed{0}\boxed{0}\boxed{1}\boxed{0}$ $A = 2 = \boxed{0}\boxed{0}\boxed{1}\boxed{0}$ $B = 3 = \boxed{0}\boxed{0}\boxed{1}\boxed{1}$
Binary or	|	$A \mid B = 3 = \boxed{0}\boxed{0}\boxed{1}\boxed{1}$ $A = 2 = \boxed{0}\boxed{0}\boxed{1}\boxed{0}$ $B = 3 = \boxed{0}\boxed{0}\boxed{1}\boxed{1}$
Binary XOR	^	$A \wedge B = 1 = \boxed{0}\boxed{0}\boxed{0}\boxed{1}$ $A = 2 = \boxed{0}\boxed{0}\boxed{1}\boxed{0}$ $B = 3 = \boxed{0}\boxed{0}\boxed{1}\boxed{1}$
Binary not	~	$\sim A = \boxed{1}\boxed{1}\boxed{0}\boxed{1} = -2$
Right shift	>>	A>>1 = $\boxed{0}\boxed{0}\boxed{0}\boxed{1}$
Left shift	<<	A<<1 = $\boxed{0}\boxed{1}\boxed{0}\boxed{0}$

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Answer to the Q. No. 3(b)

Arduino sheilds are pre-built circuit boards used to connect to a number of arduino boards. Sheild are useful to extend the capacity of arduino.

Importance of L293D:

L293D IC is a typical motor driver IC that allows the DC motor to drive in any direction. It is used to control two DC motors instantaneously in any direction. It works on the basic principle of H-bridge. Real life implementation can be in robot as robot arms rotates.

Importance of Relay:

This sheild provides ~~an Ra~~ a way to control high voltage. It acts like a switch tha can be turned on or off. It can be controlled using microcontroller. It can be used in home automation like turn off or on light/fan with voice command.