**CONTENT ASSESSMENT 6**

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1. **Explain the following concepts on interacting with the RPi’s GPIO:**

**• Controlling the GPIO using sysfs**

Sysfs is a pseudo filesystem provided by the Linux kernel that makes information about various kernel subsystems, hardware devices, and device drivers available in user space through virtual files. GPIO devices appear as part of sysfs.

The basic steps to use a GPIO pin from the sysfs interface are the following:

1. Export the pin.  
2. Set the pin state as input or output.  
3. If the pin chosen is output pin, set the level to low or high.  
4. If the pin chosen input pin, read the pin's level (low or high).  
5. When done, unexport the pin.

**• Controlling the GPIO using Boost.Python**

The GPIO.h file contains a boost\_python\_module () that is used to wrap c++ class. In order to call the C++ class code within the python code “Boost.Python” is used for this purpose.so user can control the raspberry pi GPIO pins by using C++ code in python.

**• Controlling the GPIO using the enhanced GPIO C++ class**

Enhanced GPIO c++ class uses callback Functions. So that the function can be executed only when physical pushbutton is pressed

**• Controlling the GPIO using the RPi Memory**

Raspberry Pi GPIO controlling by using RPi memory is consist of building custom Linux Kernel version for raspberry pi. This option is used to achieve high performance on GPIO pins of the raspberry pi using memory mapped techniques.

**• Controlling the GPIO using WiringPi**

WiringPi is a PIN based GPIO access library written in C for the BCM2835, BCM2836 and BCM2837 SoC devices used in all Raspberry Pi. versions. The source code is not publicly available but may be made available to those who wish commercial support. WiringPi uses the memory mapped technique and sysfs to create a highly efficient library. When there is a case where you need fast switching wiringpi is the recommended library. Wiringpi also consist of comprehensive library of C functions for controlling the GPIO pins of the raspberry Pi.