Precautions

How not to fry Microcontroller Board

Remember:

This guideline is applicable to all – Original, Clones, Counterfeits Microcontroller Boards

If Following not followed, it will instantly fry your board

#1) Never Short Output Pin to GND and VCC

Output pin is meant to be Output so current should be either drawn out or it should be zero. Output Pin should never be connected to GND or VCC directly. If there is need, you can add resistor in between the pin and source.

#2) Never Short I/O Pin to Voltage outside GND and VCC

#4) Do not short VCC and GND

#5) Do not short 3.3V with GND or 5V

#6) Do not short VIN with 5V or 3.3V or GND on DC Supply

#7) Never Apply Negative Voltage to 5V or 3.3V or VIN pin

#8) Draw more current from Output Pin than max limit

You can power 2-3 LEDs from output pin safely but not more than that.
Always check whether your circuit falls under the recommended current guideline as per MCU Datasheet.
To safeguard this always connect resistor in between IO Pin and your circuit.

#9) Draw more current from MCU than max limit

You cannot run all the I/O pins at max current limit because the max current supported by MCU is smaller than total current requirement.
eg. for ATMEGA328PB, you can only draw max current from 2-3 IO pins

To increase the current limit from I/O pin, you can connect the I/O pin to Mosfet/Transistor connected to power source and then drain the current from Mosfet/Transistor. In this case current limit will be decided by the Power Source Voltage and the model of Mosfet/Transistor.