

Task 01: Submit a comprehensive commented file of the original code

```
/*Shabrya Lott
 * Tiva_c Lab06
 * Usage: This is a simple program that test the Tiva C in low power modes
 */
#include <stdint.h> //variable definitions for the C99 standard
#include <stdbool.h> //Boolean definitions for the C99 standard
#include "utils/ustdlib.h" //Prototypes for simple standard library functions
#include "inc/hw_types.h" //defines common types and macros
#include "inc/hw_memmap.h" //macros defining the memory map of Tiva C Series
#include "driverlib/sysctl.h" //defines macros for System Control API of Driverlib
#include "driverlib/pin_map.h" //Mapping of peripherals to pins for all parts
#include "driverlib/debug.h" //Macros for assisting debug of the driver library.
#include "driverlib/hibernate.h" //API definition for the Hibernation module
#include "driverlib/gpio.h" //defines macros for GPIO API of Driverlib

#ifdef DEBUG
void __error__(char *pcFilename, uint32_t u132Line)
{
}
#endif
int main(void)
{
    //set clock to 40MHz
    SysCtlClockSet(SYSCTL_SYSDIV_5|SYSCTL_USE_PLL|SYSCTL_XTAL_16MHZ|SYSCTL_OSC_M
AIN);
    //enable Port F
    SysCtlPeripheralEnable(SYSCTL_PERIPH_GPIOF);
    //Port F pins 1,2,3 as outputs
    GPIOPinTypeGPIOOutput(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3);
    //turn on green LED
    GPIOPinWrite(GPIO_PORTF_BASE,GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x08);

    //enable hibernation mode
    SysCtlPeripheralEnable(SYSCTL_PERIPH_HIBERNATE);
    //defines the clock supplied to the hibernation module
    HibernateEnableExpClk(SysCtlClockGet());

    //enable GPIO pin state to be maintained during hibernation
    //and remain active even when waking from hibernation
    HibernateGPIORetentionEnable();
    SysCtlDelay(64000000); //4sec delay
    HibernateRTCSet(0); //Reset the RTC to 0
    HibernateRTCEnable(); //turn the RTC on
    HibernateRTCMatchSet(0,5); //set the wake up time for 5sec
    HibernateWakeSet(HIBERNATE_WAKE_PIN); //set wake condition to the wake pin

    //turn off green LED before the device goes to sleep
    GPIOPinWrite(GPIO_PORTF_BASE,GPIO_PIN_3, 0x00);
    //requests the Hibernation module to disable the external regulator
    //removing power from the processor and all peripherals
    HibernateRequest();
    while(1)// infinite loop
    {
    }
}
```

Task 02: Evaluate the current in the table under step 17

Mode	Workbook Step	Your Reading
Run	17	21.3 mA
VDD3ON (no RTC)	18	7 uA
VDD3ON (RTC)	28	8 uA