

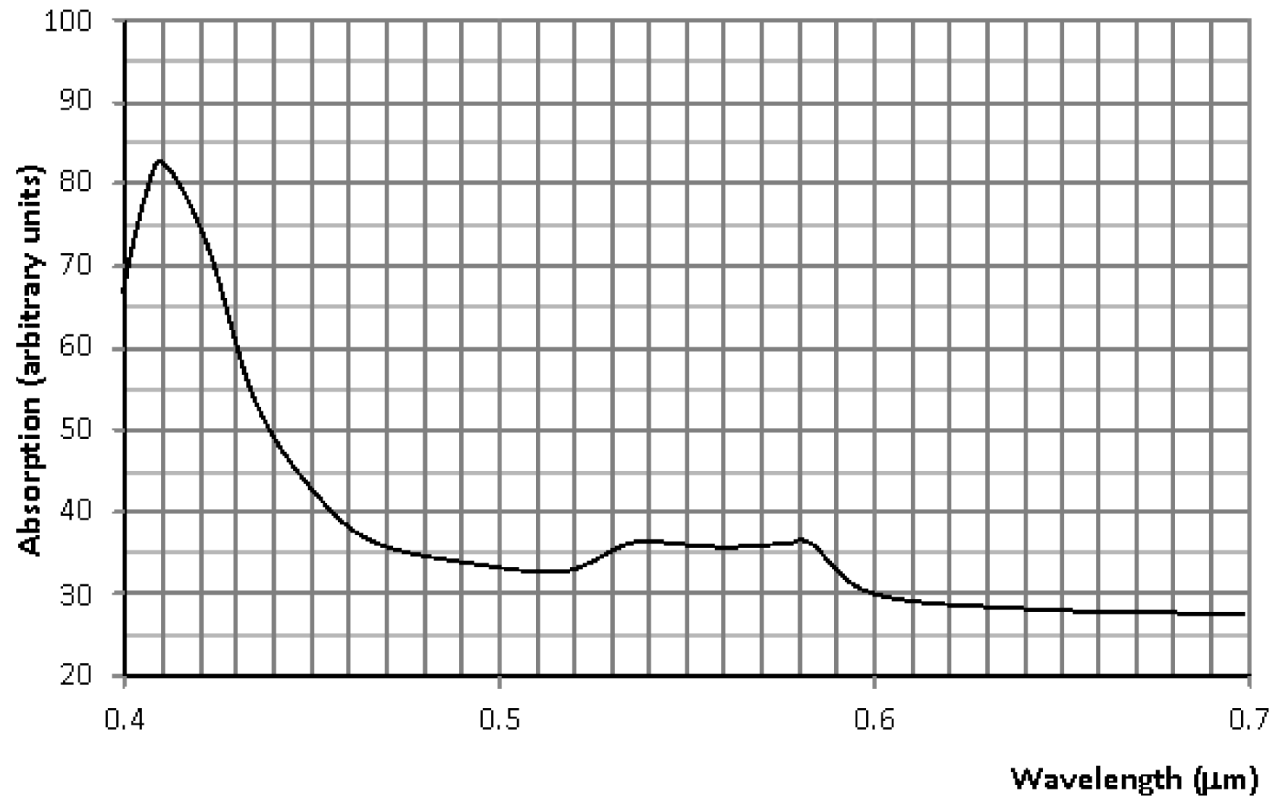
# Tutorial 2

# Question 1

- In pulse oximetry, In addition to oxyhemoglobin and deoxyhemoglobin in the artery, oxyhemoglobin and deoxyhemoglobin in the vein, water, finger nail, other soft tissue and bone also attenuates light. Design a method to reduce or reject these interfering/modifying inputs.

## Question 2

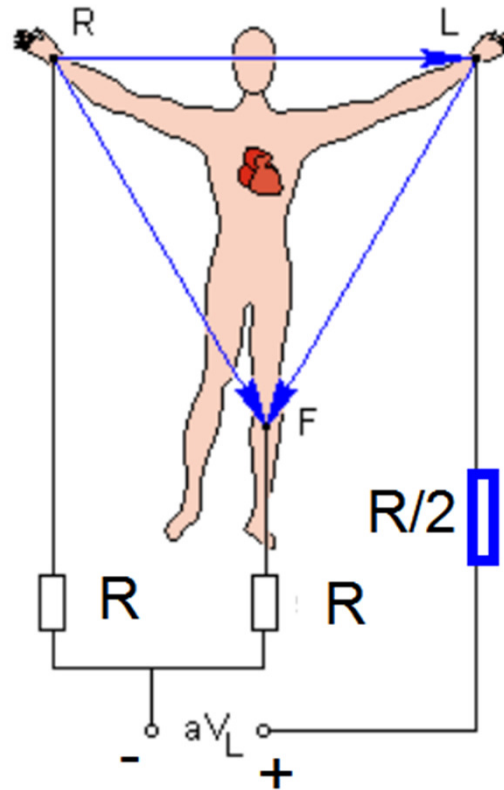
The absorption of visible light for a sample of blood is shown below.



- (a) Which wavelength of light does the sample absorb most?
- (b) Use the graph to explain why the blood appears red.

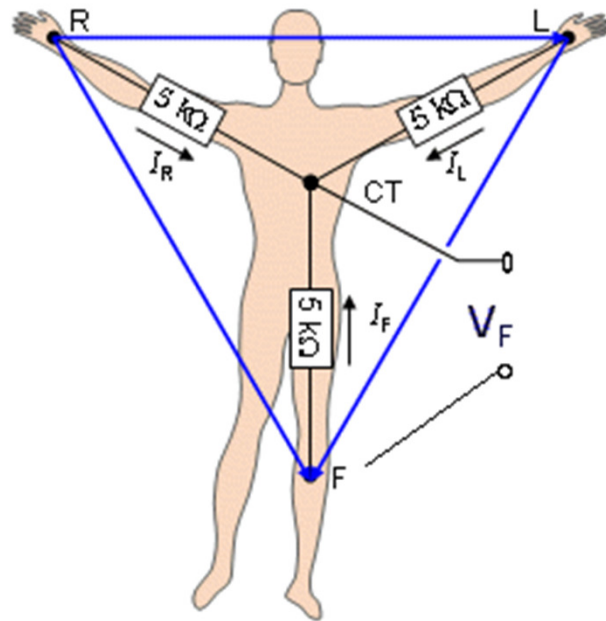
# Question 3

- In an ECG recording circuit, an engineer sees no purpose for  $R/2$  in the following figure and replaces it with a wire in order to simplify the circuit. What is the result? Please show the equivalent circuit and explain.

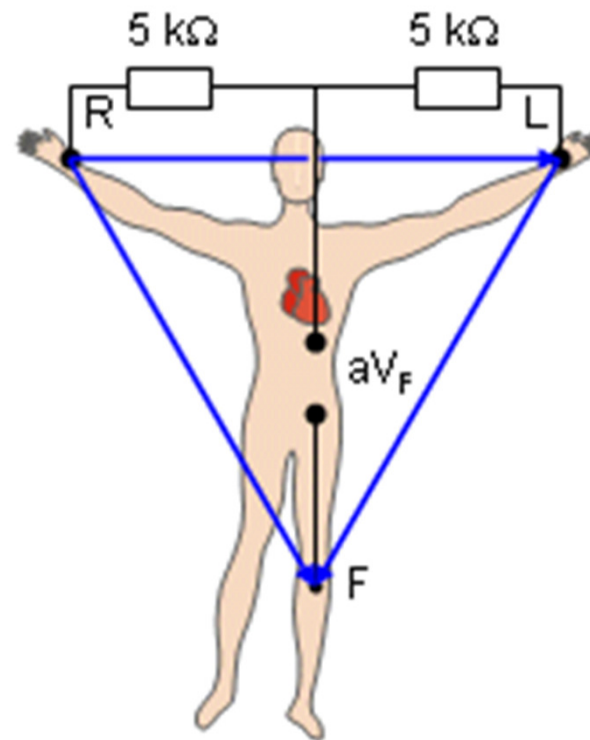


# Question 4

Show that the voltage in lead  $aV_F$  (Figure b) is greater than that in lead  $V_F$  (Figure a).



(a)



(b)