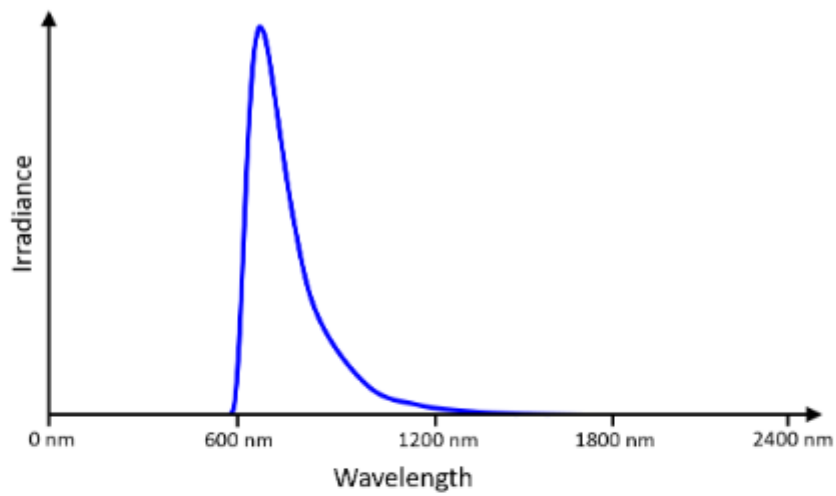


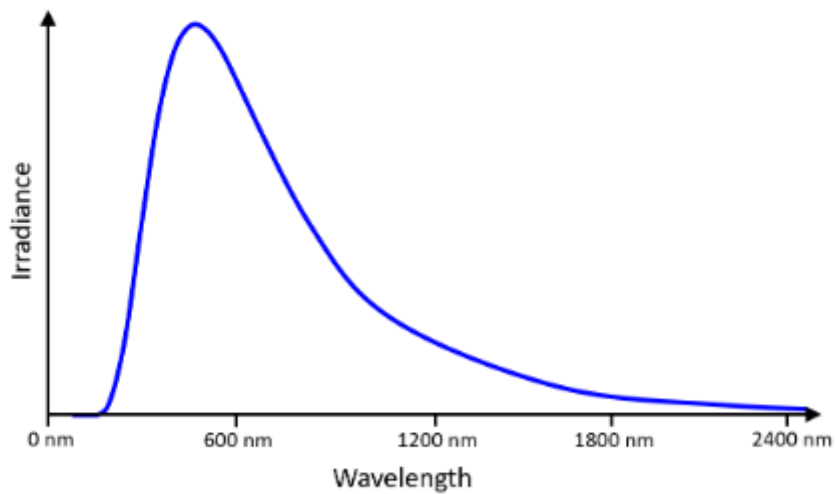
1. Spectral efficiency

Which of the following spectra would have the highest spectral efficiency?

☒ Spectrum A



☐ Spectrum B



☐ Spectrum A and B will have the same spectral efficiency

✓ Correct  
That is correct

A narrow spectrum will have a higher spectral efficiency as compared to a wider spectrum.

2. Select the correct statement(s) that apply to a monolithic multilayer solar cell (tandem).

☐ The first (or top) semiconductor layer will have smallest band gap

☒ The current is limited by layer with the lowest current

✓ Correct

That is correct

The layers are in series so the voltages add and the current is shared.

☒ The open circuit voltage is the sum of the open circuit voltages from each layer

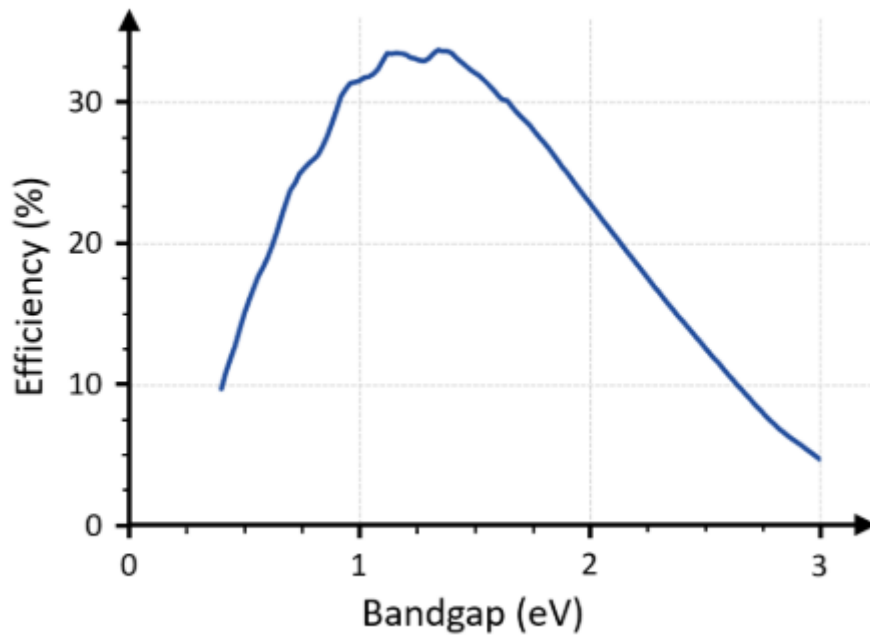
✓ Correct

That is correct

The layers are in series so the voltages add and the current is shared.

☐ The voltage is limited by layer with the lowest voltage

3. The graph below depicts the theoretical efficiency limit of a silicon solar cell.

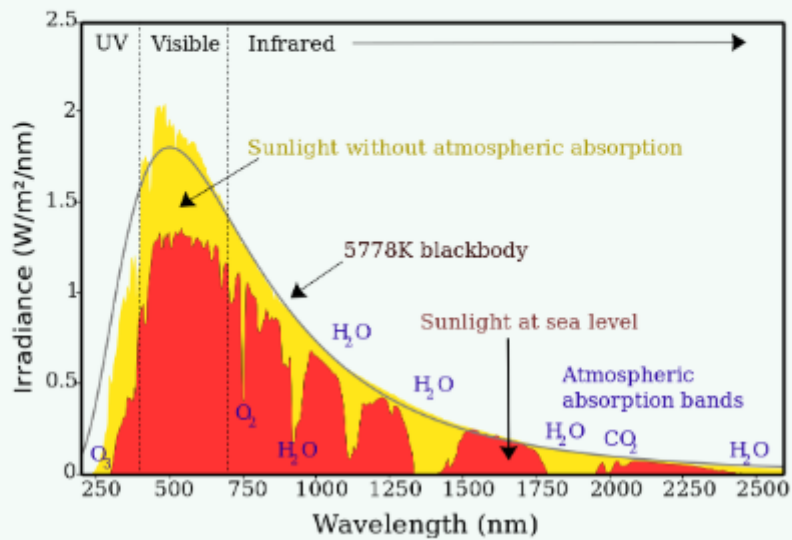


Why are there "wrinkles" on the graph?

Effect of solar spectrum.

✓ Correct

The theoretical efficiency is calculated based on the AM1.5 spectrum and therefore the wrinkles corresponds to the atmospheric absorption bands.



4. A filter is placed in front of an AM1.5 light source, but the short circuit current remains unchanged. This could be due to the fact that ...
- ☐ AM1.5 is insensitive to filtering
  - ☒ The below bandgap light was cut-off
  - ☐ The above bandgap light was cut-off



**Correct**

That is correct

Because the filtered light is below bandgap it did not contribute to the short circuit current.