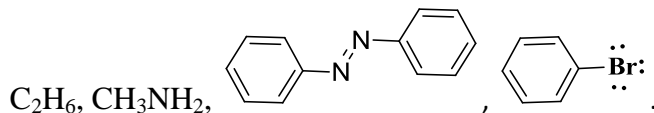


Exercise 01

Identify all possible electronic transitions for the following molecules:



Exercise 02

1. Calculate ϵ_{max} for a compound with the following data:

- Maximum absorption (A) = 1.2
- Path length of the cell (l) = 1 cm
- Concentration = 1.9 mg in 25 mL of solution
- Molar mass = 100 g/mol

2. Calculate the molar absorptivity coefficient for a solution with:

- Concentration = 10^{-4} M
- Path length of the cuvette (l) = 2 cm
- Incident light intensity (I_0) = 85.4
- Transmitted light intensity (I) = 20.3
-

Exercise 03

A potassium permanganate aqueous solution ($C = 1.28 \times 10^{-4}$ M) has a transmittance of 0.5 at 525 nm when using a cuvette with a 10 mm optical path length.

1. Calculate the molar absorptivity coefficient of permanganate at this wavelength.
2. If the concentration is doubled, calculate the absorbance and transmittance of the new solution.