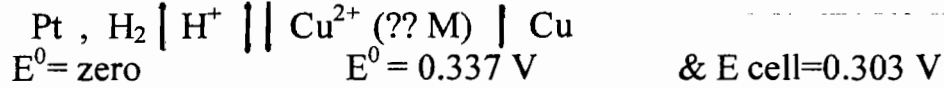


(Q / one): (20 Points)

(A) Sketch & explain the following:-

- 1- The operation mechanism of a double beam atomic absorption spectrometer, employing mechanical modulation?
- 2- The mechanical operation of a peristaltic pump and a manifold for the determination of (Pd) by FIA-Spectrometry?

(B) Deduce the cell reaction of the following cell , and then calculate the molar concentration of Cu^{2+} ?



(Q / two): (30 Points)

Describe briefly the following :-

- 1- The methylene blue method for the determination of sulphur in crude oil?
- 2- The direct line fluorescence & thermally – assisted anti stokes fluorescence?
- 3- The tungsten – halogen lamp?
- 4- The plasma discharge?
- 5- Determination of KMnO_4 by photometric titration & constant current coulometry?
- 6- The neutral carrier electrodes ?
- 7- The composition & structure of the P^{H} glass membrane ?
- 8- The difference between the internal conversion & intersystem crossing?
- 9- The chemical deviation & its effect on Beer's law?
- 10- The arc – spark emission spectrography?