STATEMENT TO THE EFFECT TO RULE 0.319

STATEMENT I :

(A) The present work is based on:

(i) the following new facts:

(a) 2-Hydroxy-5-chloro- aceto-, propio- and benzo-phenoneoximes are suitable for detection and determination of cations of transitional groups viz., Fe$^{2+}$, $^{3+}$, Co$^{2+}$, Ni$^{2+}$, Cu$^{2+}$, Pd$^{2+}$.

(b) Pd$^{2+}$, Cu$^{2+}$, Ni$^{2+}$ and Co$^{2+}$ can be detected and determined from their binary, ternary and quaternary mixtures by adjusting the pH.

(c) Colorometric determination using this reagent can be carried out for the said ions at a lower range of concentration.

(ii) This work tends to the general advancement of the knowledge as under:

(a) Copper nickel, cobalt and palladium can be estimated in presence of one another using a single reagent, by a careful manipulation with pH.

(b) A new reagent has been put forth for the quantitative determination of cobaltous ions quite comparable,
if not superior, to the now common \(-\text{nitroso-}S\text{-naphtol}\).

(c) This new reagent enables quantitative determination by colorometric methods for lower range of concentration.

(B) New relationships of facts already known:

(a) \(-\text{C=C-C=N-OH}\) system is selective for transitional elements like Fe\(^{+2}\), \(^{+3}\), Co\(^{+2}\), Ni\(^{+2}\), Cu\(^{+2}\) and Pd\(^{+2}\).

(b) The reagents having the above systems enable estimation of cobalt at higher pH.

(c) Co\(^{+2}\), Ni\(^{+2}\) and Cu\(^{+2}\) can be detected and determined by the above type of reagents by a proper control of pH.

(c) Chelates of Cu\(^{+2}\), Ni\(^{+2}\), Co\(^{+2}\) and Pd\(^{+2}\) have transplanar configuration when dsp\(^2\) covalent linkages are involved and this can be inferred from absorption spectra and magnetic susceptibility determination.

**STATEMENT II:**

(a) The sources from which the information has been derived has been explicitly shown in parent thesis, wherever such information has been given.

(b) The extent to which the work is based on the known work has been stated in introduction and also wherever it is necessary.