Paper: 403

2. (a) Compare the stabilioty *trans* - decalin and *cis*-decaline.

(b) Write the Cotton effect with sign and proper octant projection diagram of (S)-1,3-dimethylallene, (R)-2-Fluorocyclohexanone, 2-Cholestanone.

(c) Write the conformation of cis-syn-cis-perhydrophenanthrene, and trans-anti-trans-perhydroanthracene and comment on their optican activity.

(d) Use Felkin-Anh model to explain the formation of major product of the following reaction:
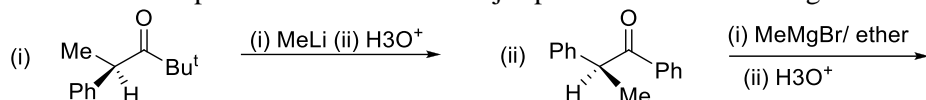
$$2+3+2+3 = 10$$

Paper: 403

3. (a) Write the Cotton effect with sign and proper octant projection diagram of (R)-1,3-dimethylallene, (S)-2-Methylcyclohexanone.   2

(b) How will you differentiate between the two isomeric form of 2-Butene by ^{13}C-NMR spectroscopy?

(c) How many signals are expected in ^{13}C-NMR spectroscopy of different isomeric structures of xylenes.

(d) Write down the chemical shift order with proper explanation of Sn, Sn(II) and Sn(IV).

(e) Give the mass spectral fragmentation of bicycle [2, 2, 1] heptane indicating main peaks.

$$2+2+2+2+2 = 10$$