## Joint Group Meeting Problems by Sushital Jana

1. Propose a catalytic cycle to explain the following outcome:

2. Propose a plausible mechanism for the following transformation:

$$R^{1} \stackrel{\text{OH}}{=} R^{2} + R^{3} \stackrel{\text{N}_{2}}{=} CO_{2}R^{4} \stackrel{\text{[Rh(cod)(OH)]}_{2}}{=} (2.0 \text{ mol}\%) \\ \text{toluene, } 100 \, ^{\circ}\text{C}, 1 \text{ h} \qquad R^{1} \stackrel{\text{I}}{=} (R^{3} CO_{2}R^{4}) \\ \text{1a-i} \qquad \text{2a-i} \qquad \text{3a-x}$$

 $R^1 = H$ ;  $R^2 = Alkyl$ , Aryl;  $R^3 = Alkyl$ , Aryl;  $R^4 = Aryl$ , Alkyl