$\qquad$
February March 14, 2001 SSN $\qquad$ Seat No $\qquad$

1. Complete the following equations. Name all organic reactants and products. (35\%)
a.




2-Cyclopentylpropanoic acid
2-Cyclopentyl-1-propanol
b.


4-methylhexanoic acid

Ethyl 4-methylhexanoat



4-Methylpentanoyl chloride


N-methyl-4-Methylpentanoamide
$d$


2,5-Dimethylhexanoic acid
Sodium 2,5-Dimethylhexanoate
e.

don't name

2. Draw the structures of the compounds whose names are given below. (20\%)
a. 2-Phenylbutanoamide

b. R-2-pentanol (draw in 3 dimensions)

c. Ethyl benzoate

d. S-1,2-Dichloropropane (draw Fischer projection)

3. Write an equation which would allow the preparation of $\mathrm{N}, \mathrm{N}$-dimethylpropanoamide in one step. (20\%)


4. Write the mechanism for the reaction shown below. (15\%)

5. Draw Fisher projections of 3 stereoisomers of 2,3-dibromobutane. (10\%)


Pair of enantiomers

meso compound

