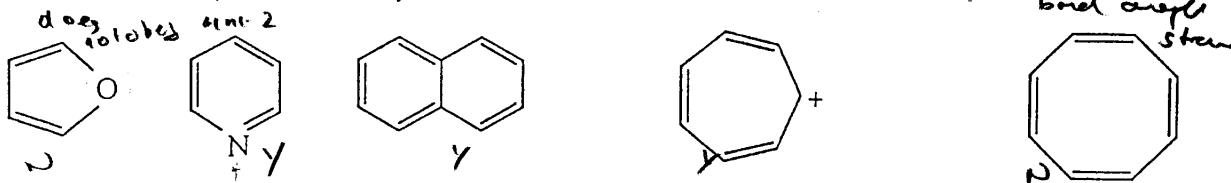


Marks

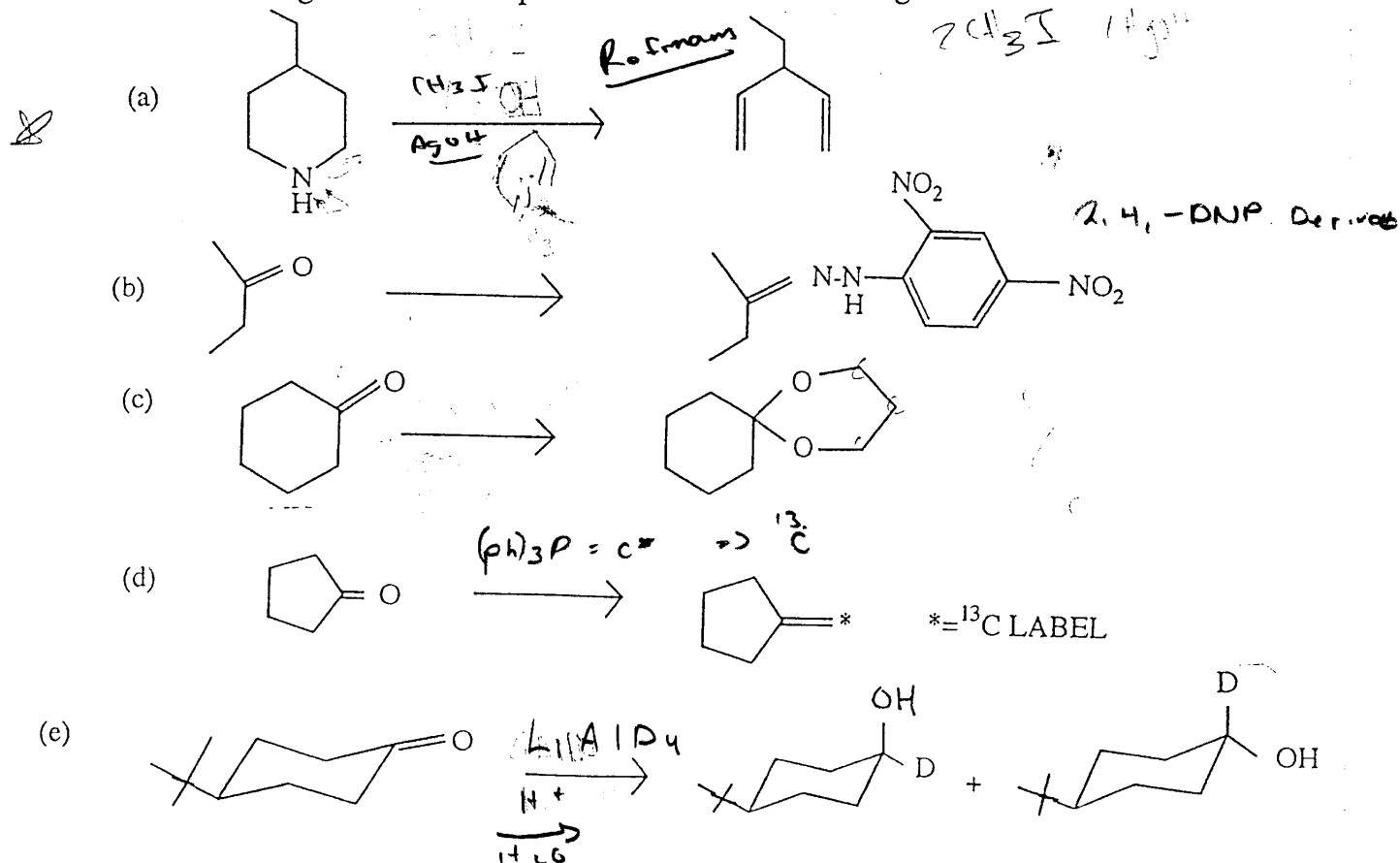
- 5 1. Indicate, with a brief rationale, which of the compounds depicted below, will be aromatic and which will not.



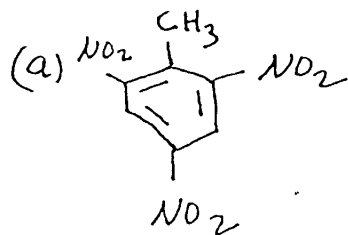
- 10 2. Provide structures for the major organic product in each of the following reactions:

- (a) butanal + methyl amine $\text{H}-\text{N}(\text{CH}_3)-\text{H}$ amine
- (b) propanone + dimethyl amine
- (c) pentanal + hydroxyl amine
- (d) cyclohexanone + methyl magnesium bromide, then H^+ , H_2O
- (e) cyclopentane carboxaldehyde + sodium borohydride, then H^+ , H_2O

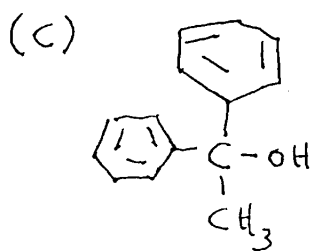
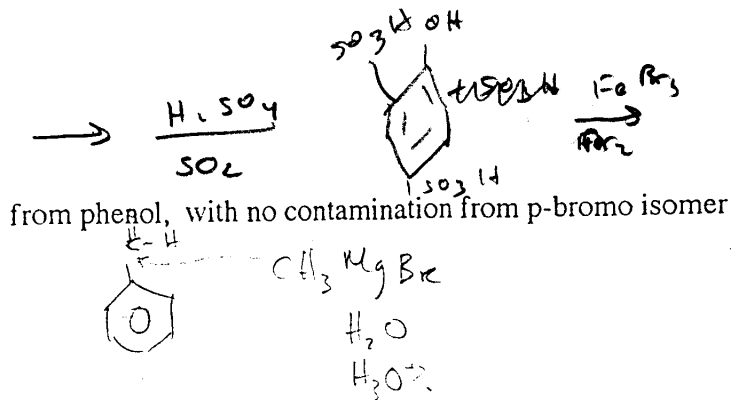
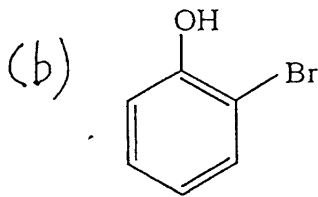
- 10 3. Provide reagents to accomplish each of the following transformations



following "target" molecules from the indicated starting materials.
N.B. Indicate your strategy, even if you do not know all the reagents.



from benzene



from benzene

10 5. Provide the appropriate name from the following list for each of the following structures.
 cocaine, morphine, heroin, codeine, caffeine, "ecstasy", demerol, fentanyl, sufentanyl, adrenaline

