

I. Draw structures corresponding to each of the following names (A-J) (20%)

A. 2-pentene

F. resorcinol

B. *n*-hexane

G. phenol

C. acetylene

H. methyl vinyl ketone

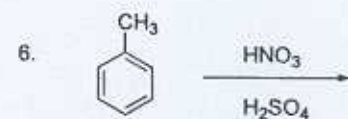
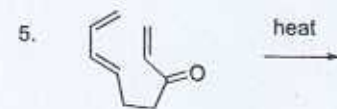
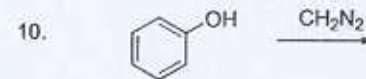
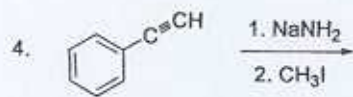
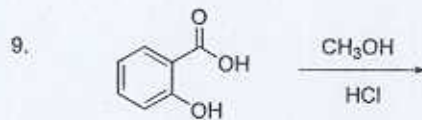
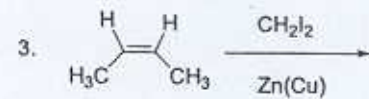
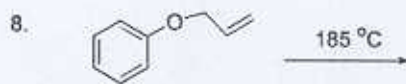
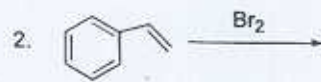
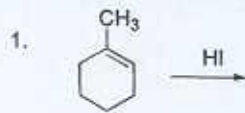
D. dichloromethane

I. acetaldehyde

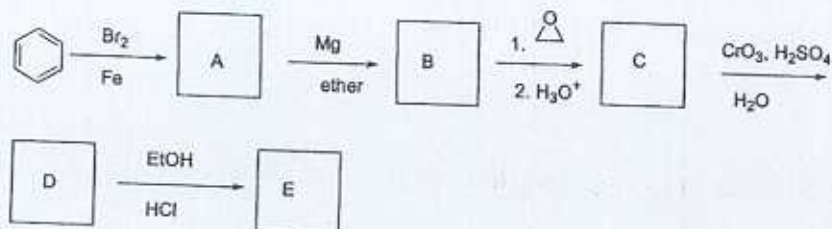
E. toluene

J. glycerol

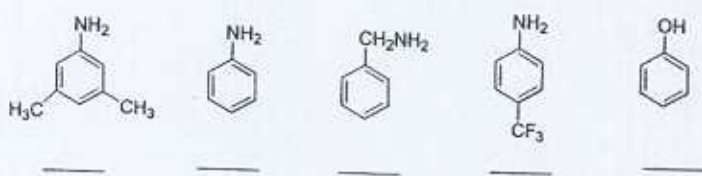
II. Give the major organic product(s) in each reaction below. (40%)



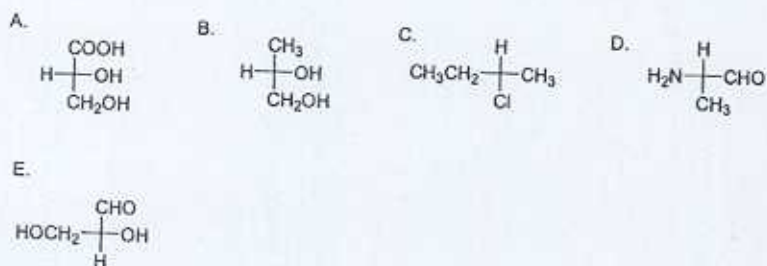
III. Ethyl phenylacetate is a pleasant smelling compound used in perfumery. Draw structures for each of the intermediates(A-E) in the synthesis of ethyl phenylacetate below. (10%)



IV. Rank the following compounds in order of increasing basicity. Label the least basic compound "1" and the most basic compound "5". (10%)

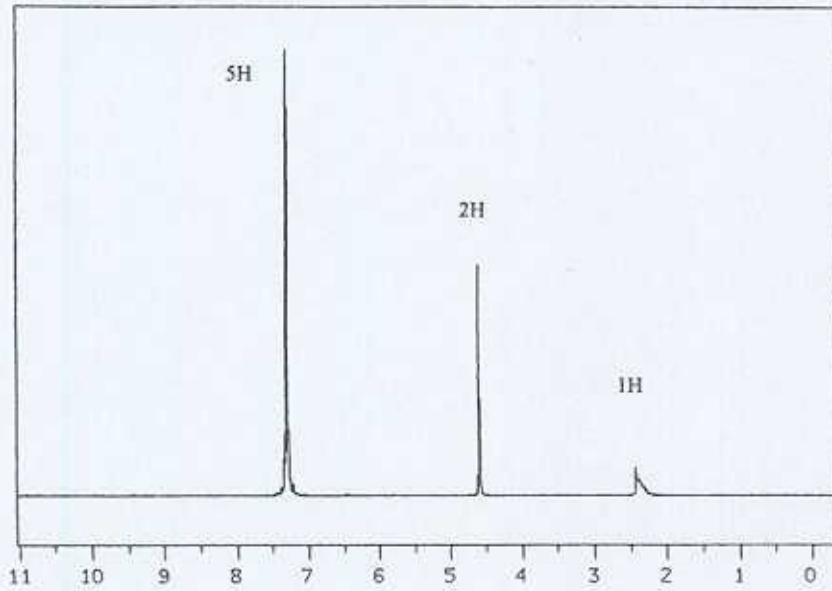


V. Assign R or S stereochemistry to the following Fischer projections (A-E) (10%)



VI. Propose structures for alcohols that have the following $^1\text{H-NMR}$ spectra. (10%)

A. $\text{C}_7\text{H}_8\text{O}$ (neat solution; no solvent)



B. $\text{C}_3\text{H}_8\text{O}$

