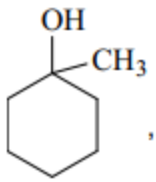
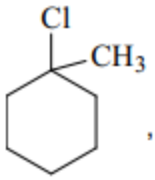
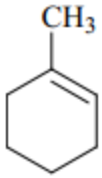
CHAPTER - 19
ALCOHOLS, PHENOLS AND ETHERS

1. 3 Symmetrical alkene (3) gives same product in the three reactions

2. 3 $LiAlH_4$ reduces ketones and carboxylic acids to corresponding alcohols

3. 2 P = 

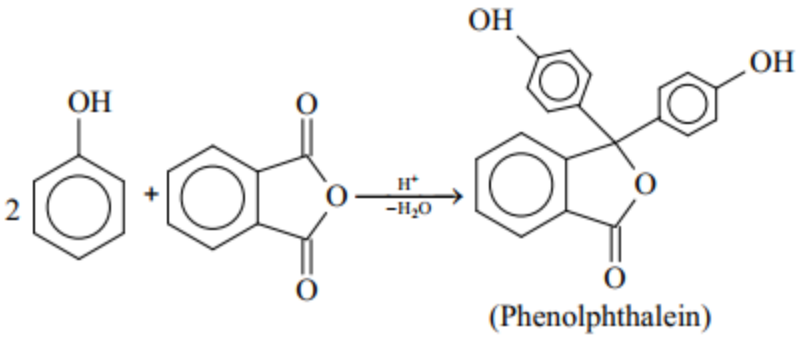
, Q = 

, R = 

4. 3 PCC can oxidise 1° and 2° alcohol to aldehyde and ketone, respectively

5. 3 Esterification reaction

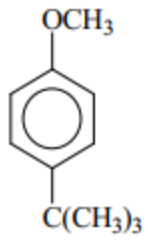
6. 3 Bromination of phenol occurs in the absence of a Lewis acid

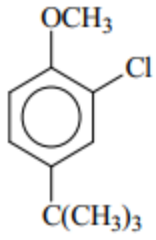
7. 3 

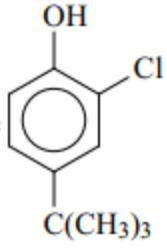
(Phenolphthalein)

8. 4 3° alkyl halide gives elimination reaction (product is alkene)

9. 3 1° alkyl halide gives ether product

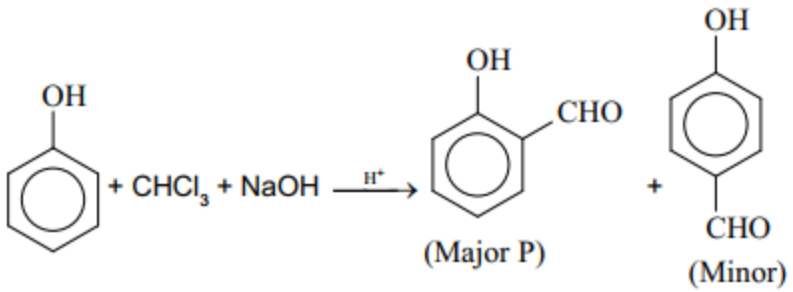
10. 4 X = 

, Y = 

, Z = 

11. 2 Ethers 3 and 4 react by S_N1 mechanism with HBr

12. 69

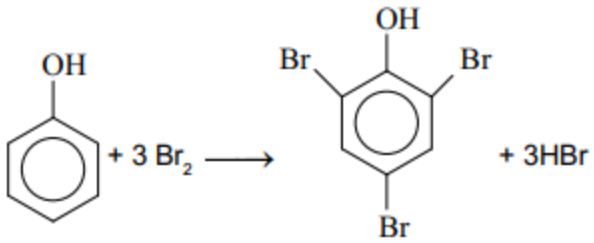


Mol.mass of P = 122

% of C = $\frac{12\times7}{122}\times100 = 68.85\%$

13. 2 Ester $\xrightarrow{\text{2 equiv. RMgX}}$ Alcohol

14. 41



94g phenol requires 480 g Bromine

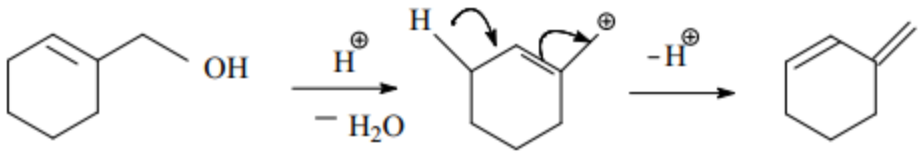
$\therefore$ 8g phenol requires $\frac{480}{94}\times8 = 40.85$

15. 6 Addition of each acetyl group increases molecular mass by 42 units

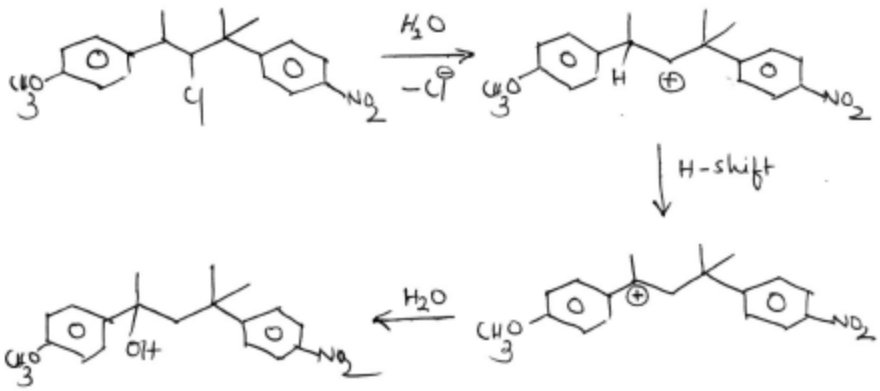
Total increase in molecular mass = 434 – 182 = 252 (i.e, 42 × 6)

$\therefore$ Total number of –OH groups = 6

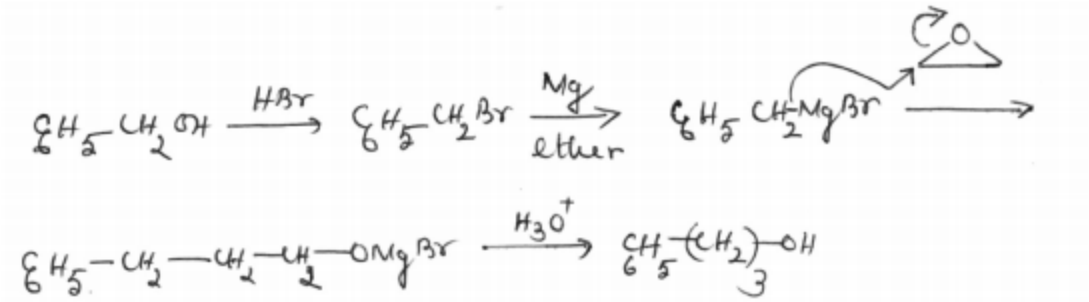
16. A



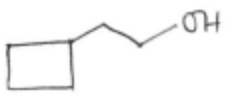
17. B



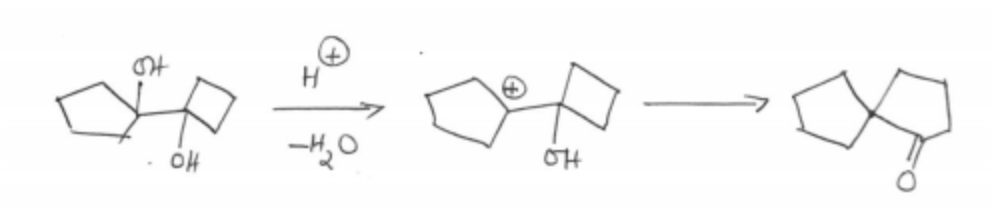
18. C



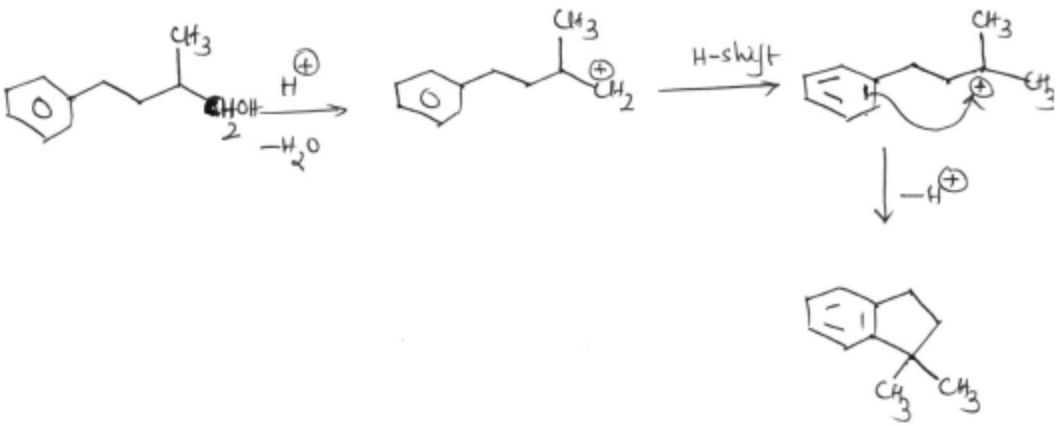
19. D The compound must be a saturated 1° or 2° alcohol.



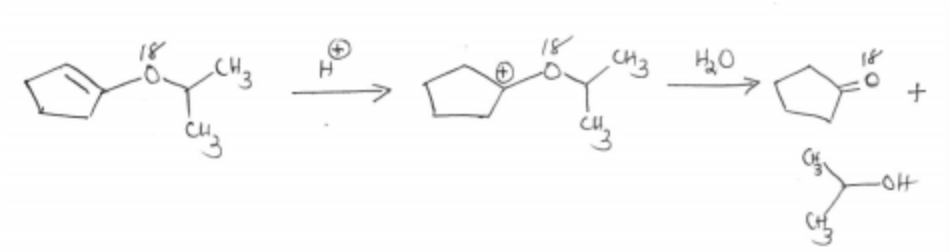
20. A



21. A



22. AC



23. ACD

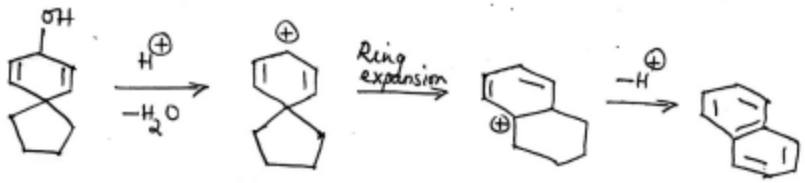
'A' is an achiral diol. Oxidation product of 'C' and 'D' are chiral.

24. ABC 'D' gives a secondary alcohol (Isopropyl alcohol)

25. ABC 'D' gives elimination product (Isobutylene)

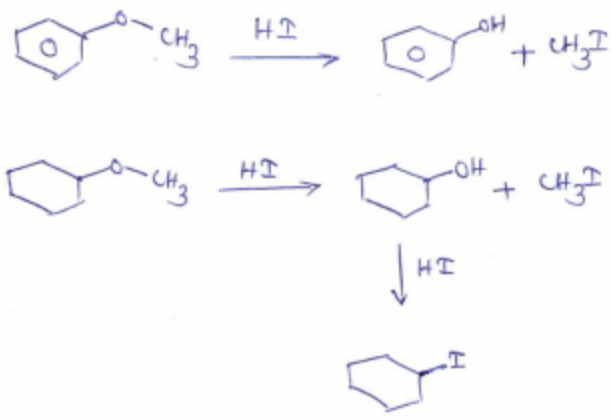
26. AB Order of boiling point is, Ethanol > Chloroethane > dimethyl ether > propane > ethane.

27. 2



28. 5 Compounds 1, 2, 3, 4 and 8 can give turbidity with Lucas reagent without heating.

29. 3.00



Thus, $x = 1$ and $y = 2$.

30 ..A Order of acid strength is,

p-nitrophenol > o-nitrophenol > m-nitrophenol > o-cresol

pK_a follows the reverse order.