

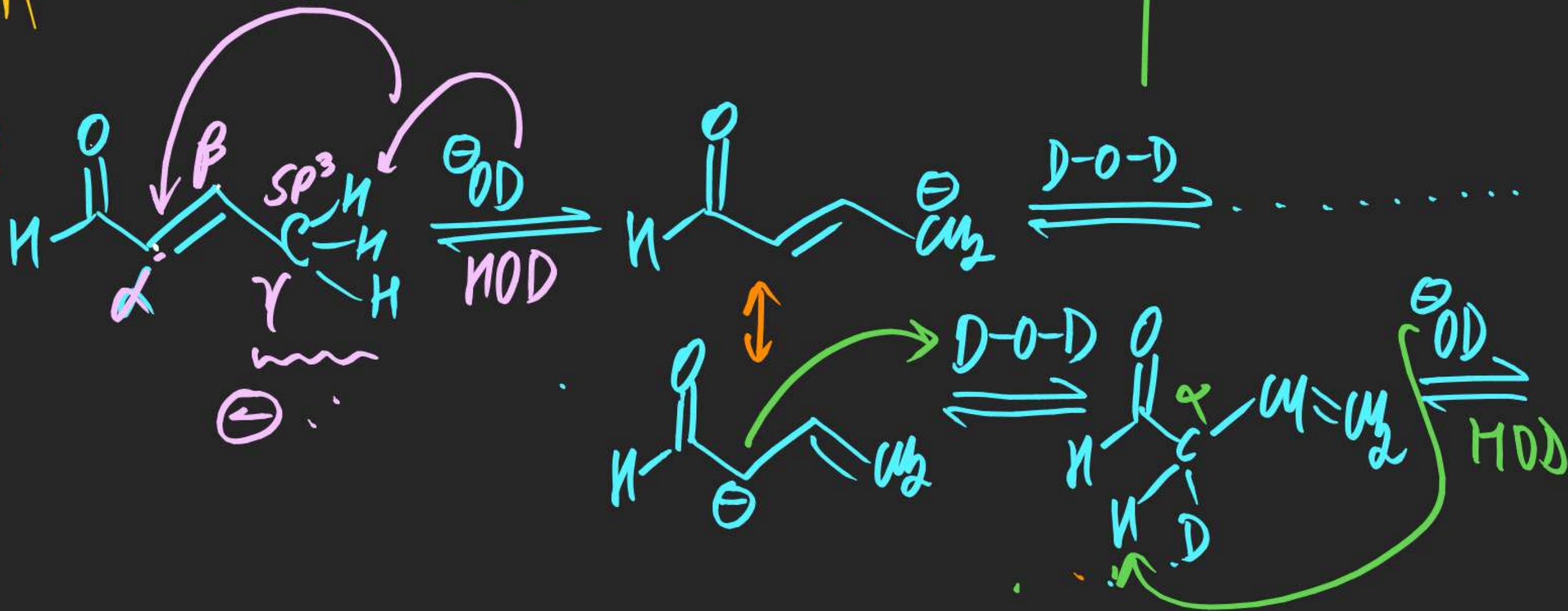


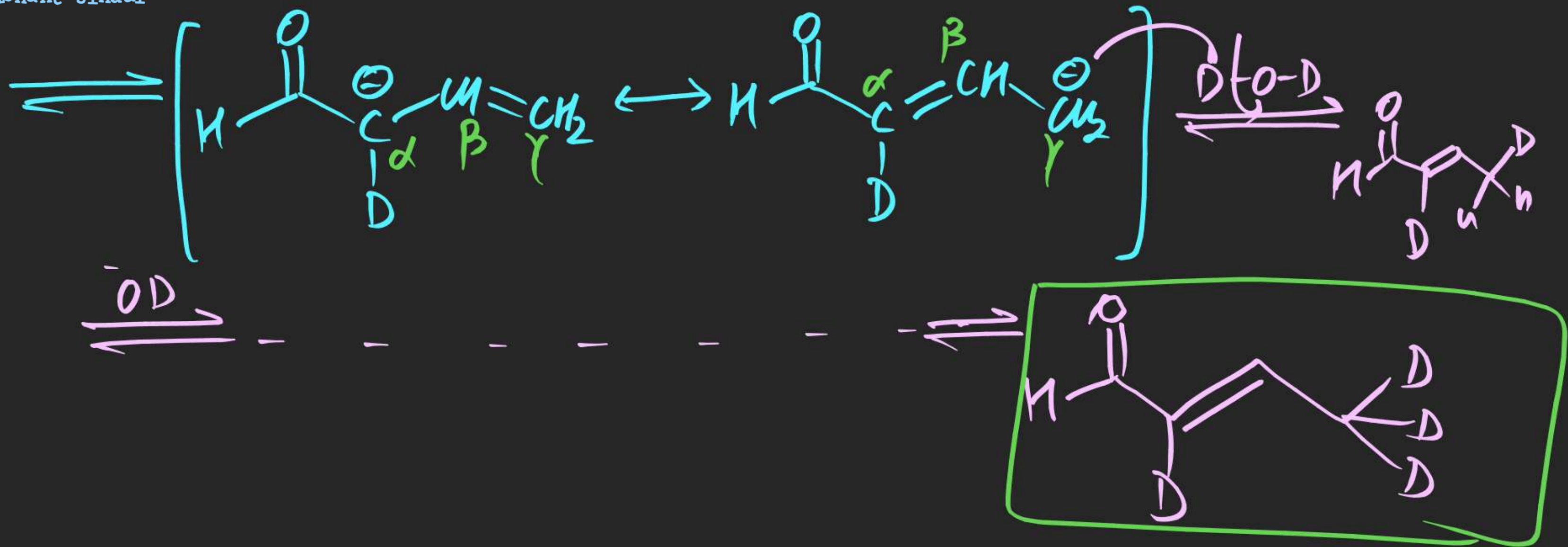


Telegram.

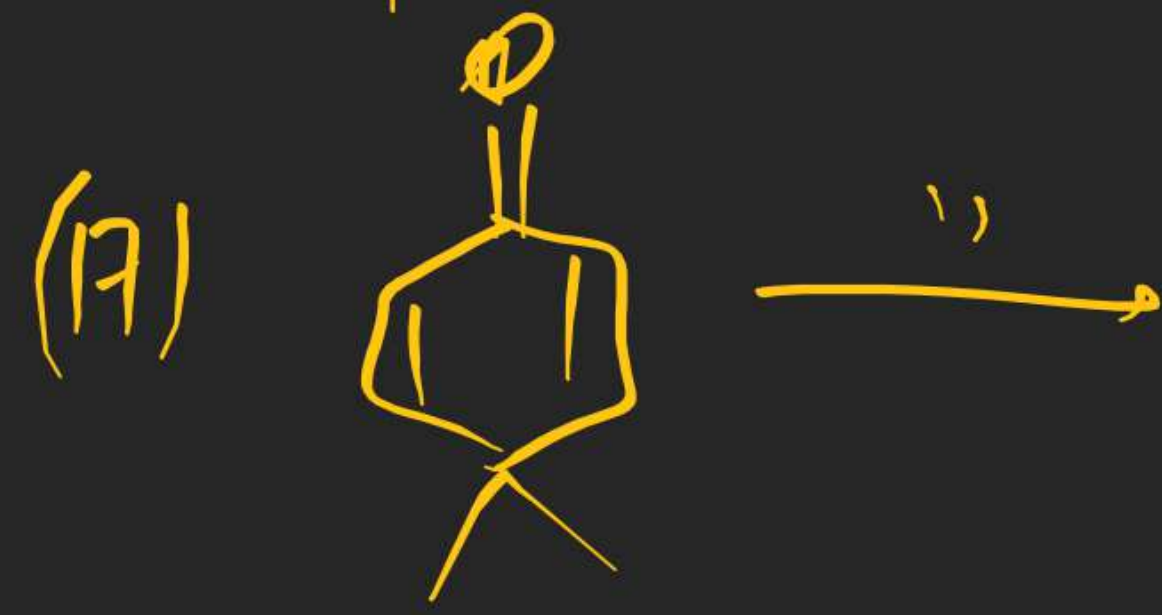
SKM-Nucleus Academy

mech<sup>n</sup>:





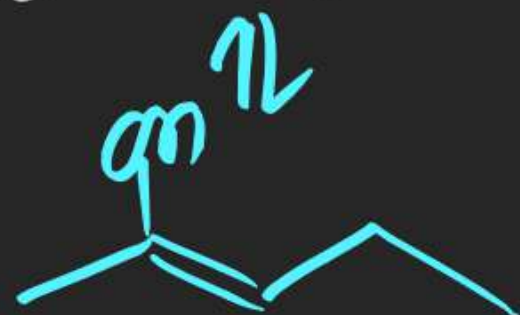




(BB) GOC Mains Ex  
(1-40) Qw  
 (GOC sheet complete)

Ex: Arrange following in  $\downarrow$  order of % Enol.

(1)

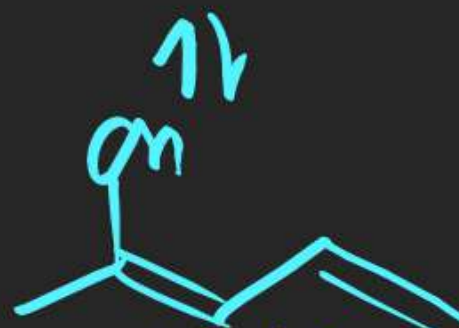
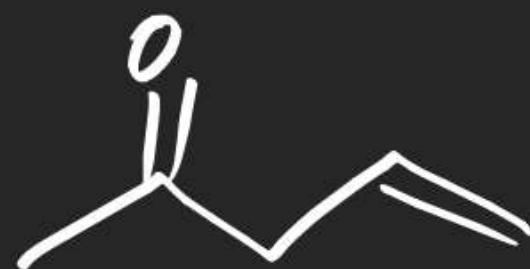


(II > I)

(2)



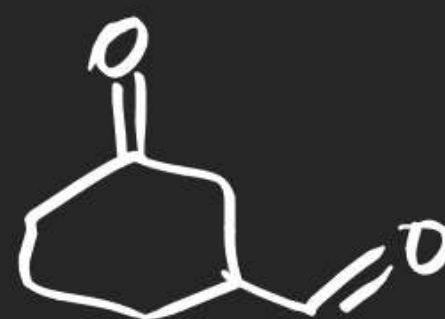
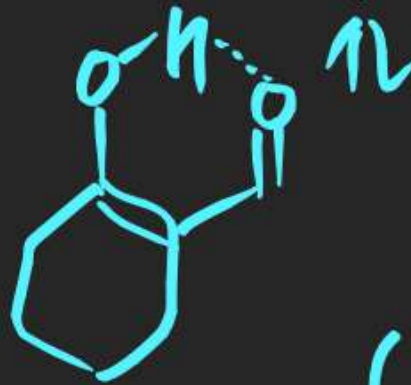
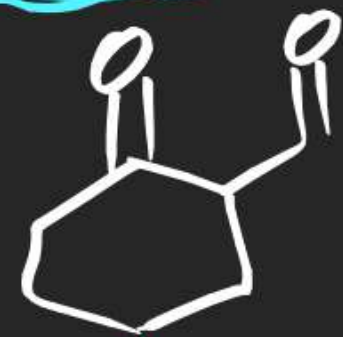
(III > II > I)



more stable due to Extended Resonance



(3)



(I > II)

(4)



Not Aromatic

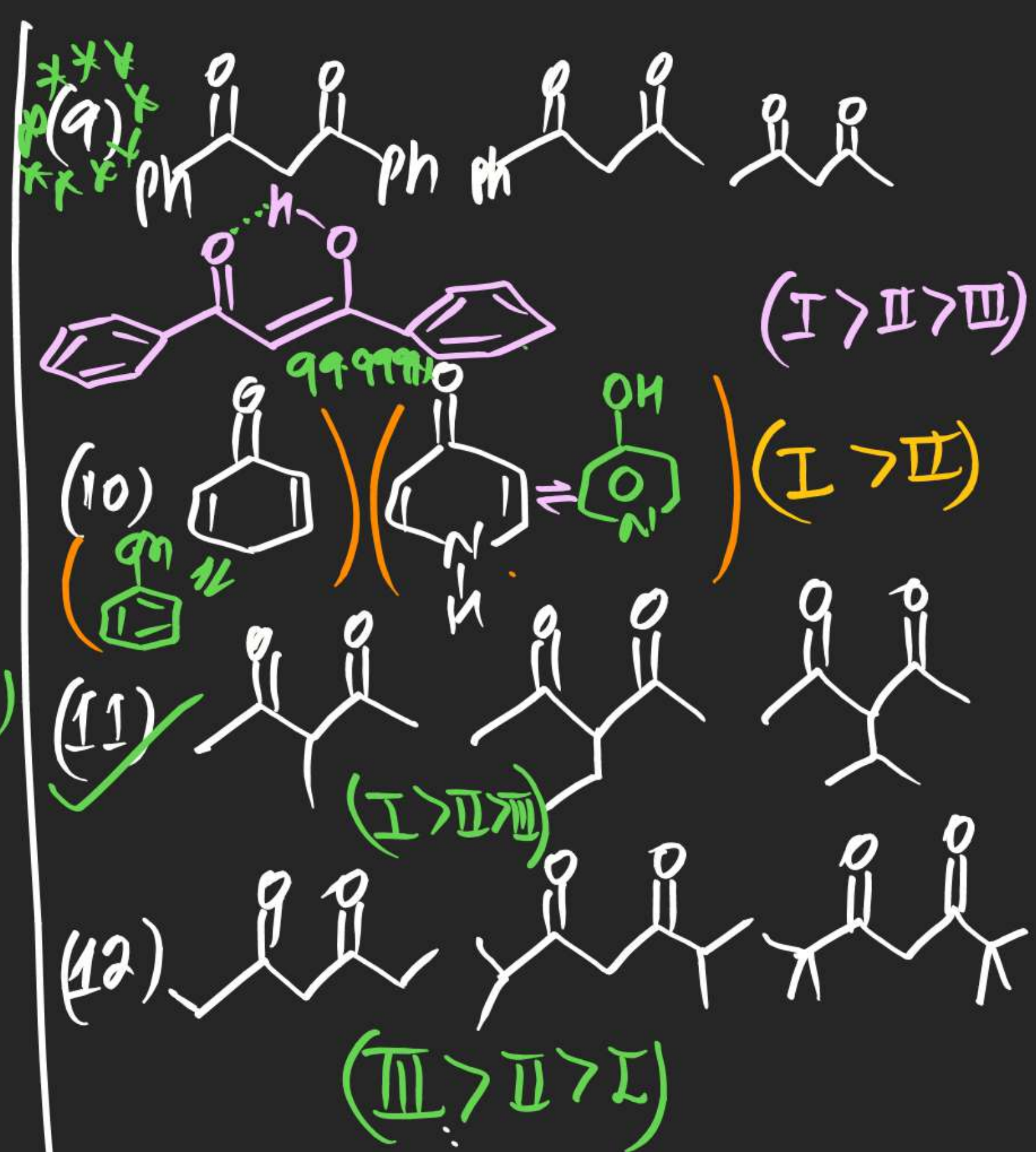
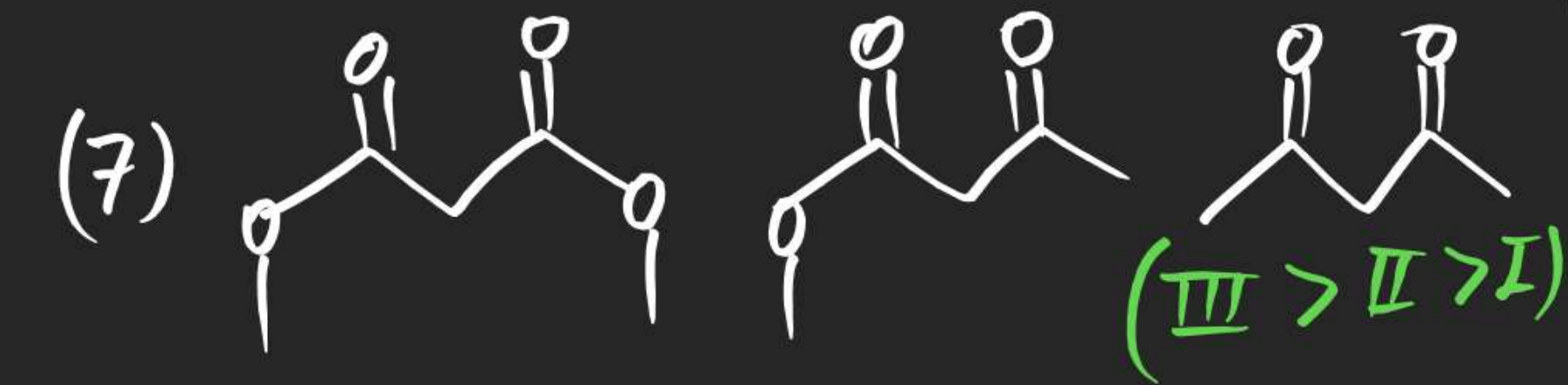
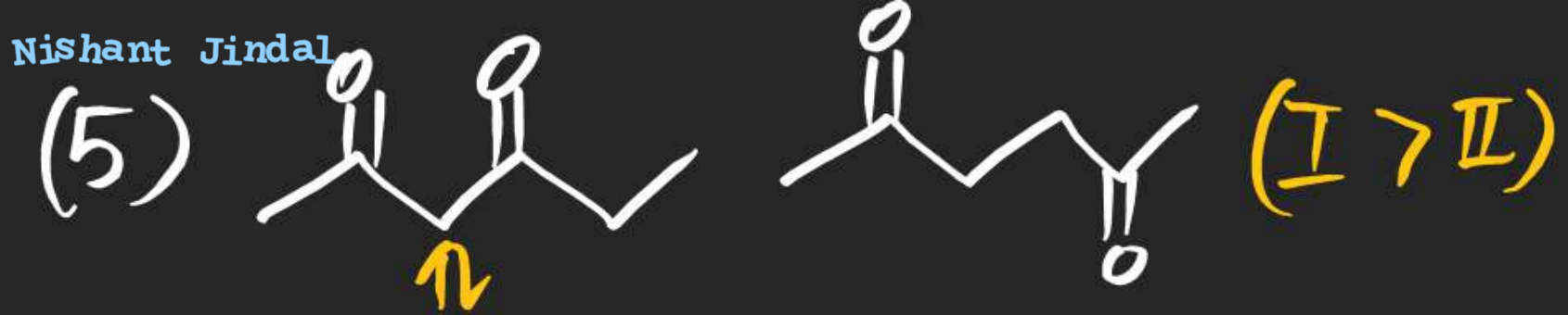


Anti Aromatic  
III > I > II



Aromatic

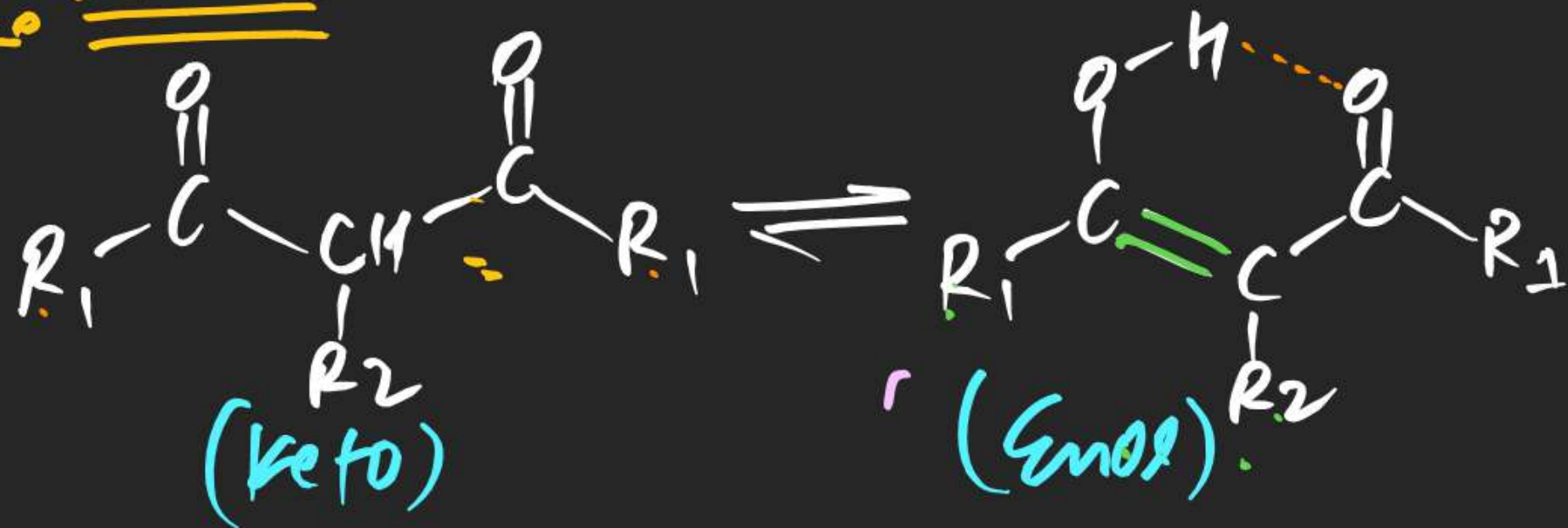






# (#) Factors affecting % Enol :

## (i) Structure of keto :



⇒ If size of  $R_2$  increases ⇒ steric crowding would increase in Enol & hence % Enol decreases

⇒ If size of  $R_1$  increases ⇒ wd cause steric chelation b/w OH & =O hence increases % Enol.



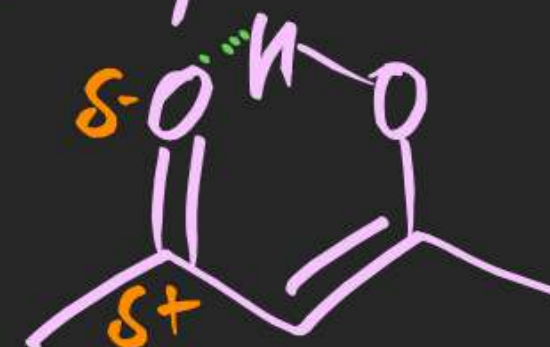
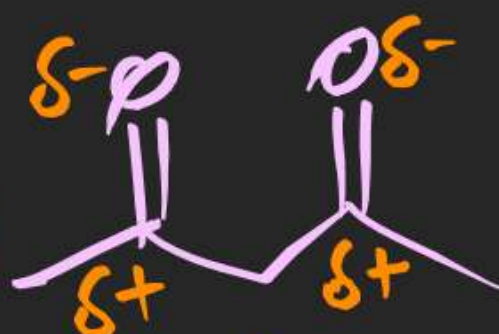
# (#) effect of Temp!

On increasing Temperature % Enol decreases  
 becoz chelation gets destroyed.

# (#) effect of solvent!

(Acetyl Acetone)

(more polar)



% Enol ↓ as polarity of  
Solvent increases

Solvent

H<sub>2</sub>O

119.60/°

n-hexane

Gas phase

% Enol

16

35

58

76

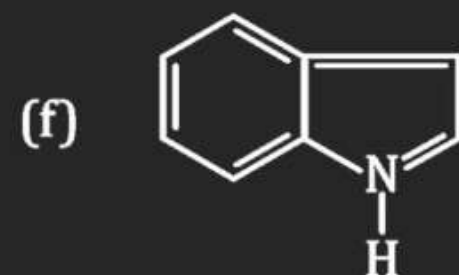
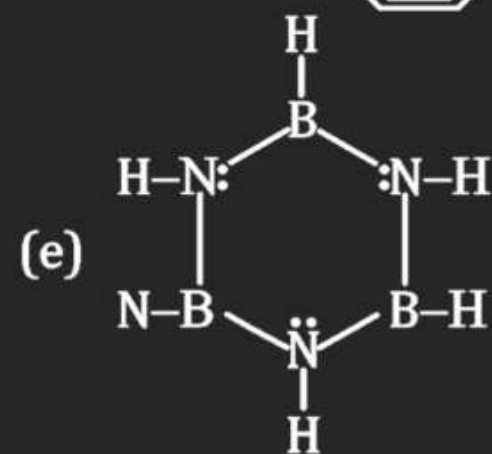
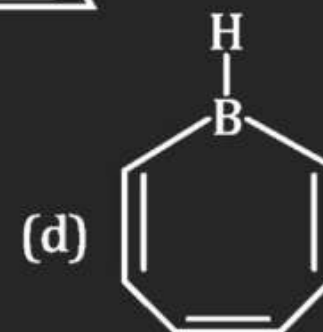
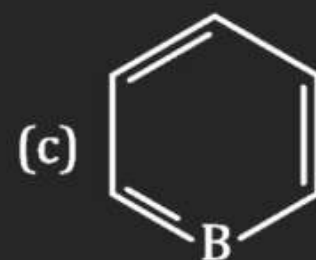
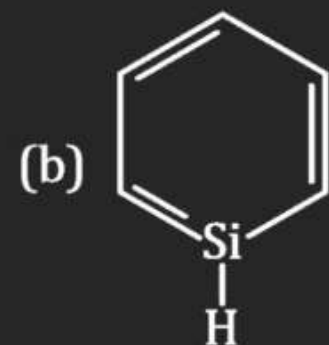
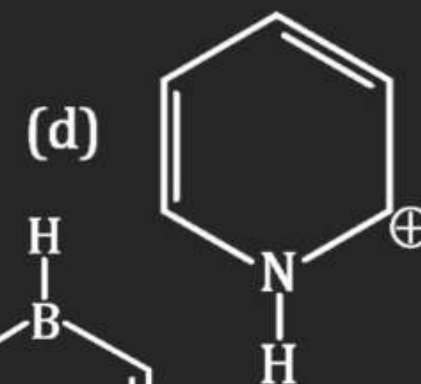
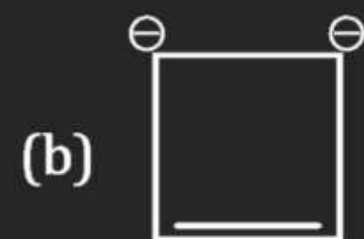
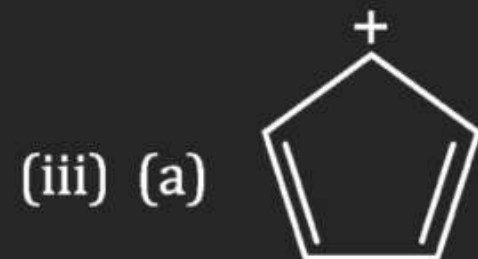
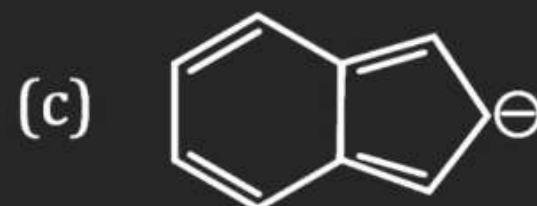
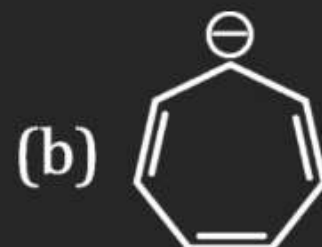
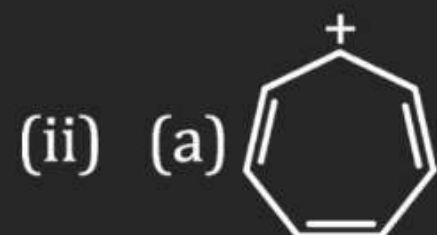
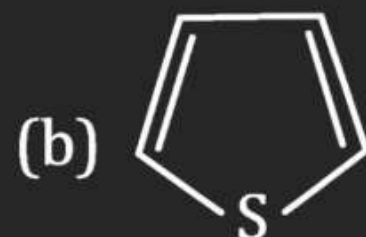
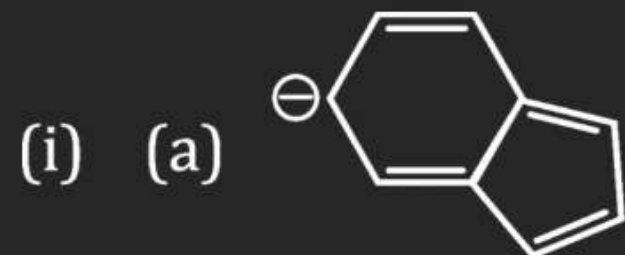




# General Organic Chemistry

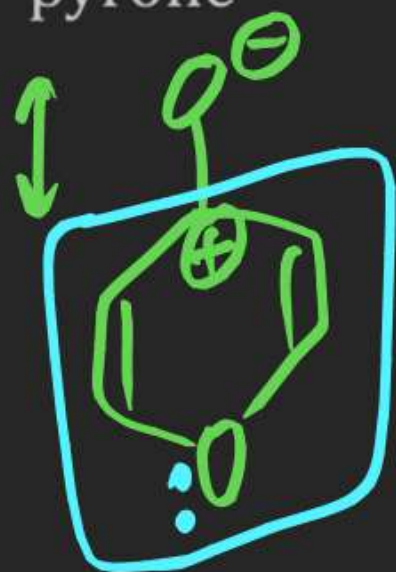
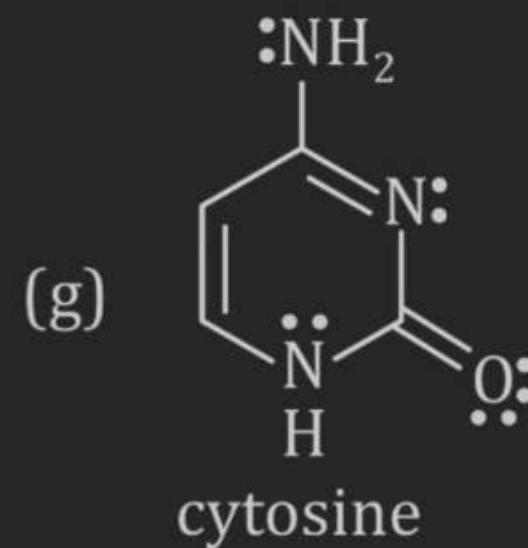
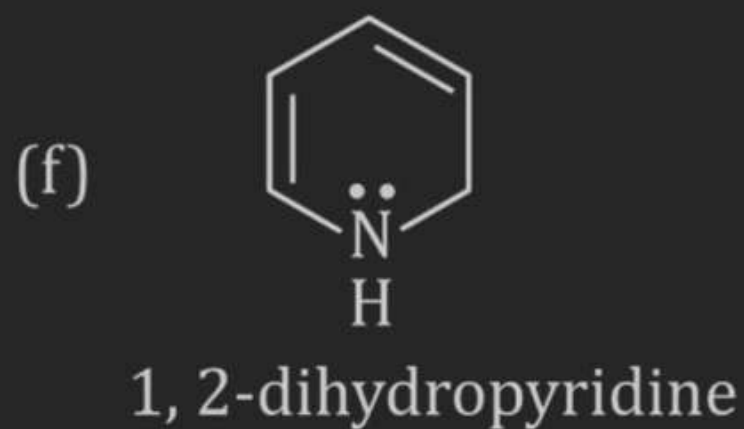
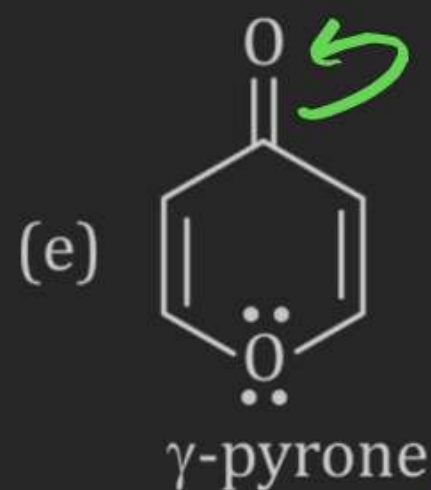
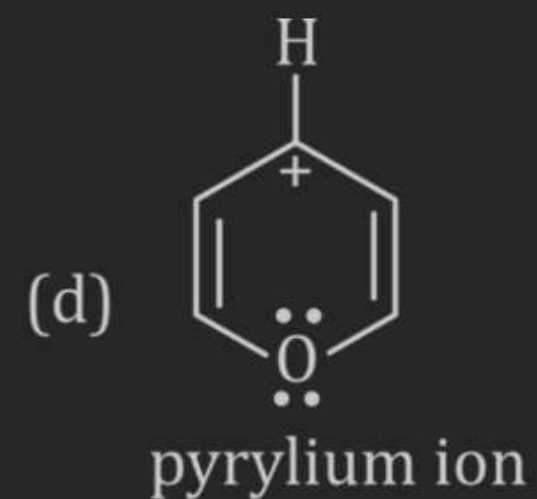
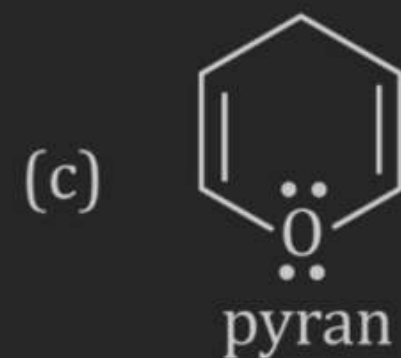
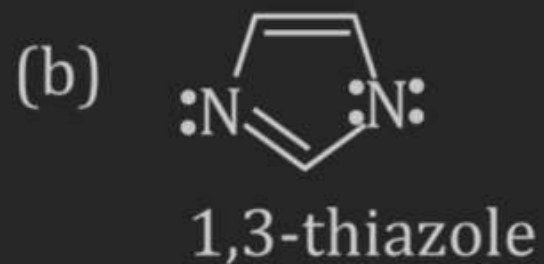
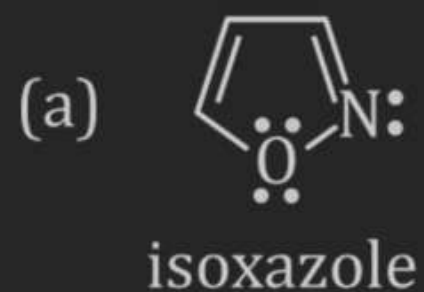
## EXERCISE - II

**Q.1** In each set of species select the aromatic species.





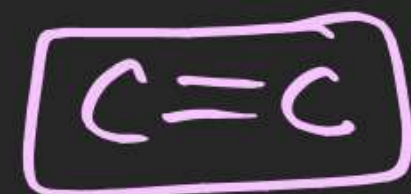
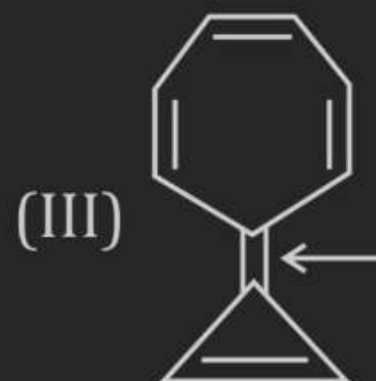
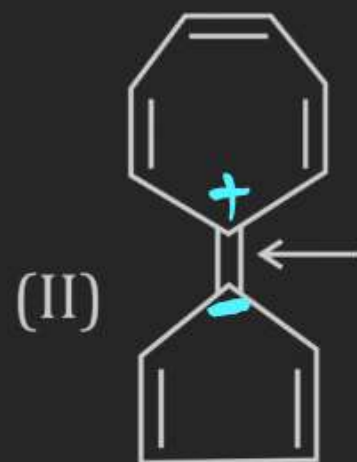
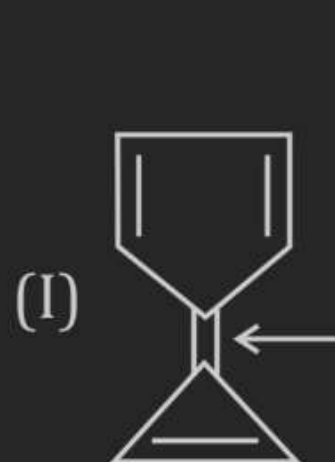
**Q.2 Which of the given compound is aromatic, antiaromatic or nonaromatic.**



6  $\pi$  e<sup>-</sup>  
Aromatic



Q.3



Tough Bond Rotation.

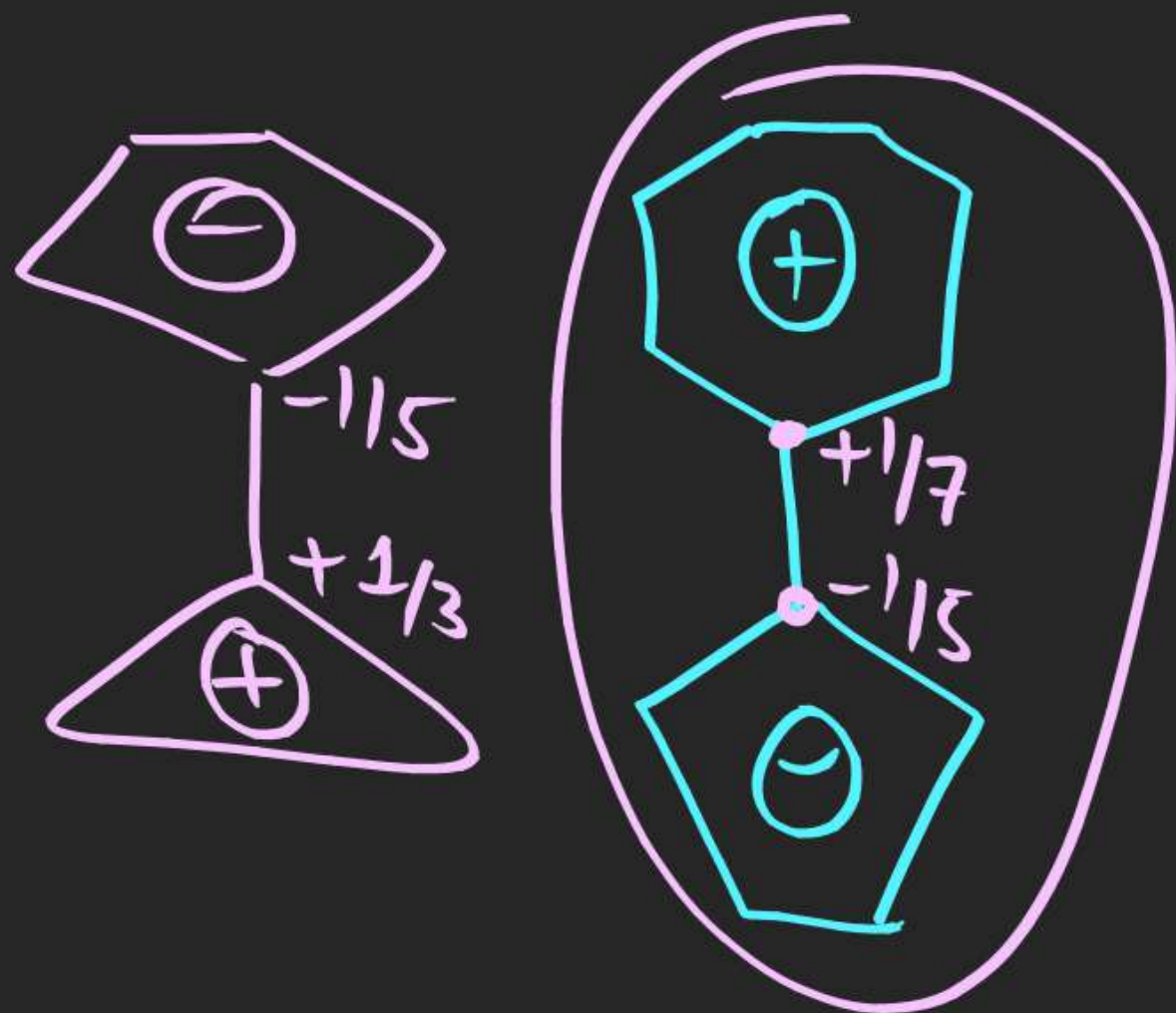
Compare carbon-carbon bond rotation across I, II, III.

(A)  $I > II > III$

(B)  $I > III > II$

(C)  $II > I > III$

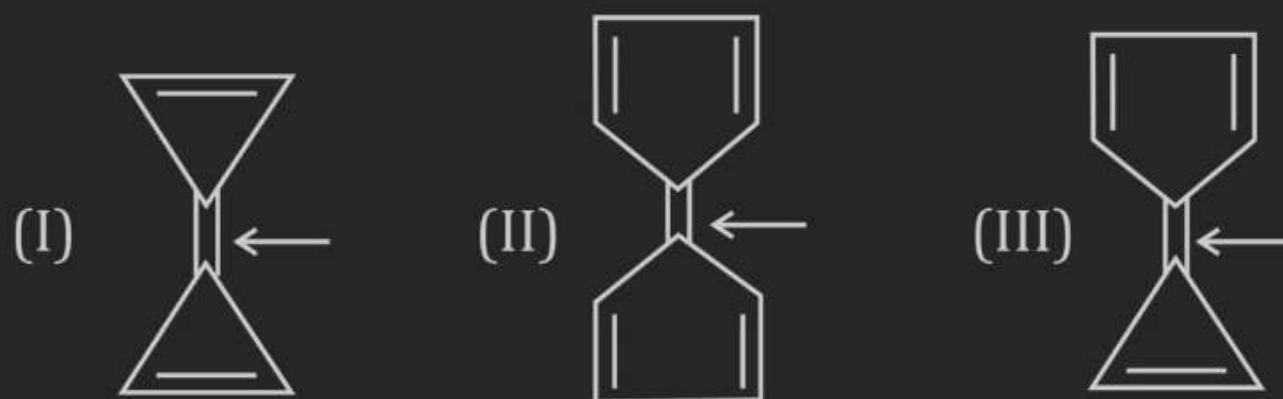
(D)  $II > III > I$





Bond  
Single character

**Q.4** Which of the given compounds has minimum rotation energy barrier across indicated carbon-carbon bond.



Compare carbon-carbon bond rotation across I, II, III.

(A)  $I > II > III$

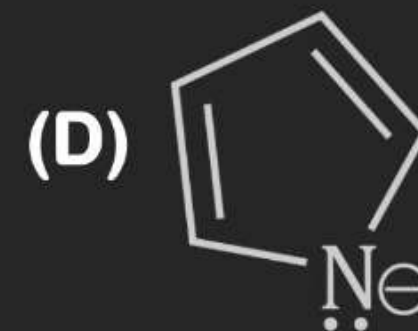
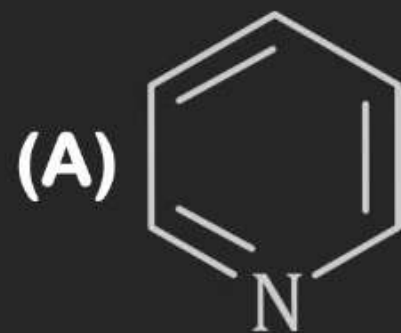
(B)  $I > III > II$

(C)  $II > I > III$

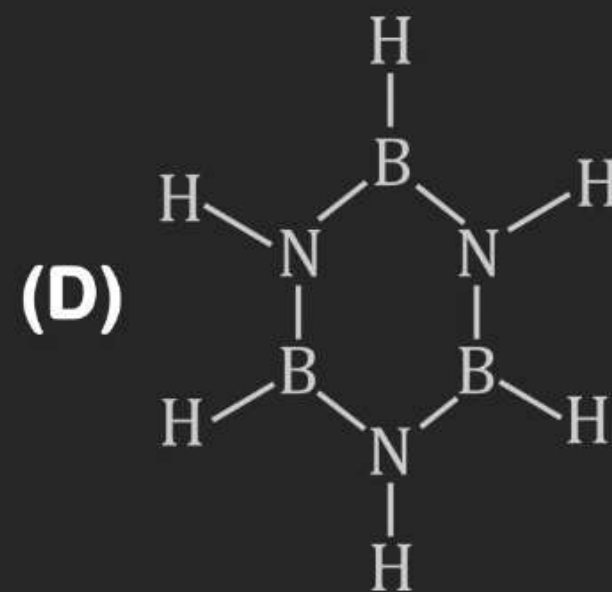
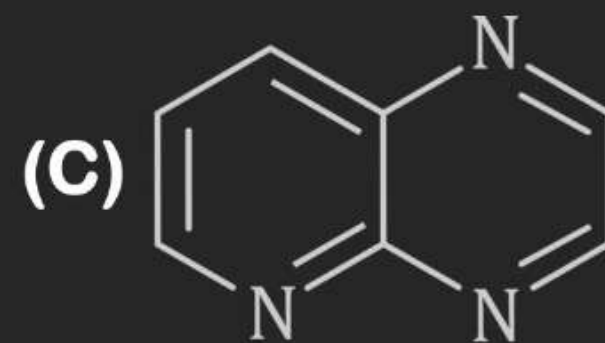
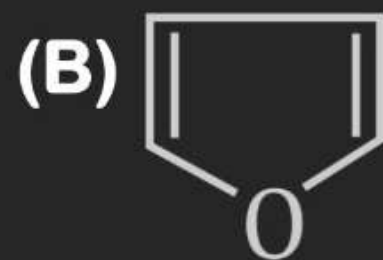
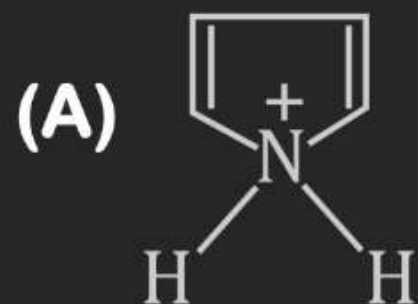
(D)  $II > III > I$



**Q.5** Which species is not aromatic?



**Q.6** Which of the following are non-aromatic

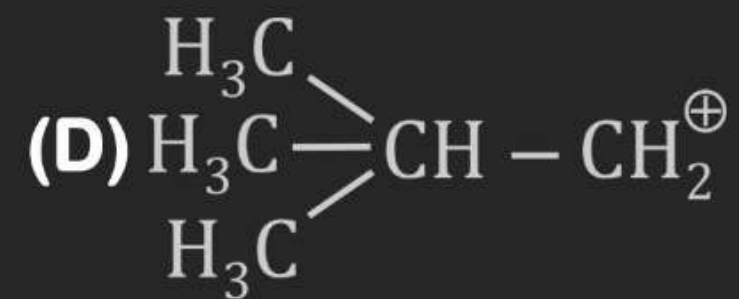
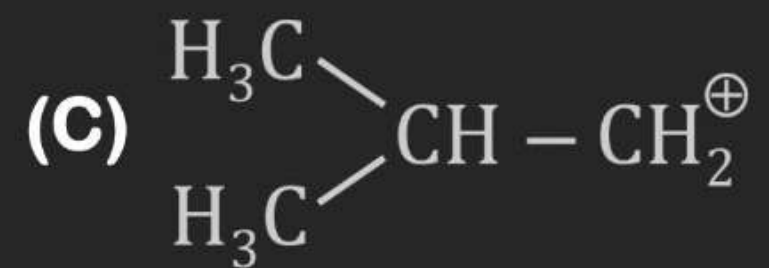
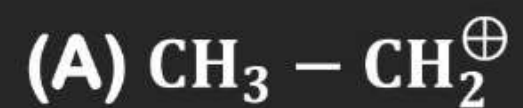




**Q.7 Write down the structure of the following molecule and comment on aromaticity?**

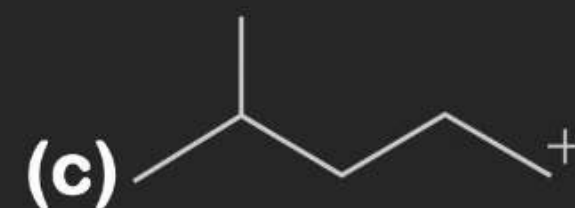
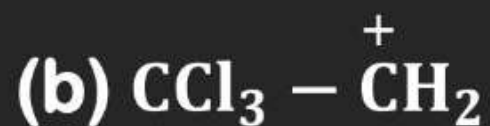
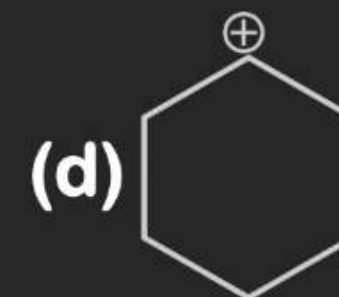
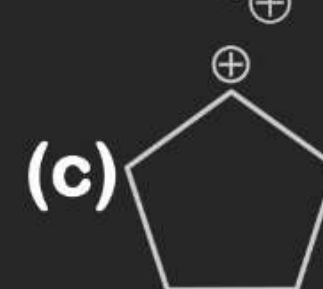
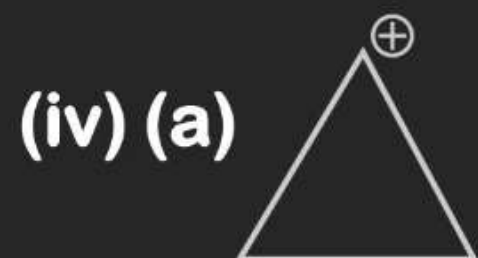
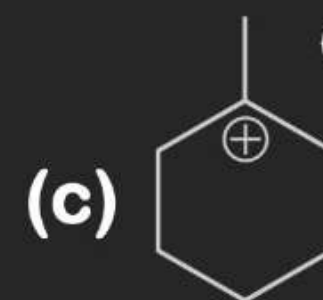
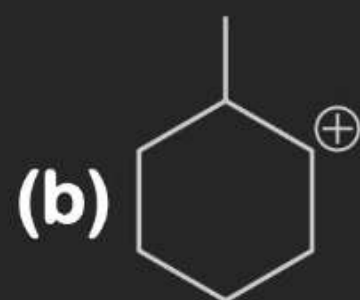
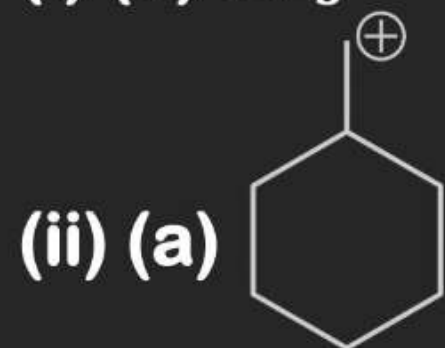
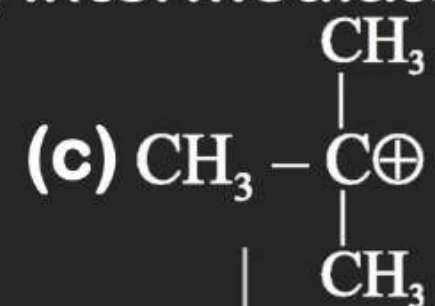
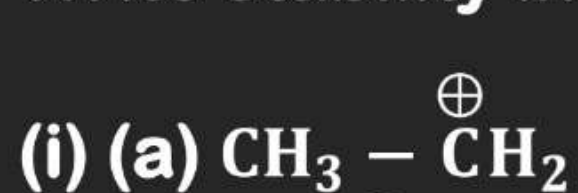


**Q.8**     **Select the least stable one :**

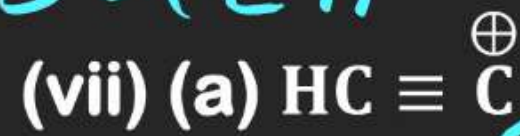




**Q.9 Write stability in decreasing order of following intermediates:**



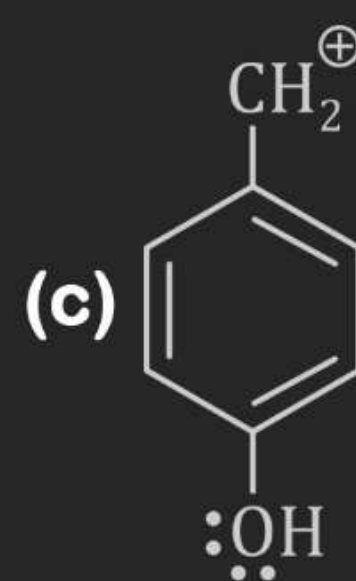
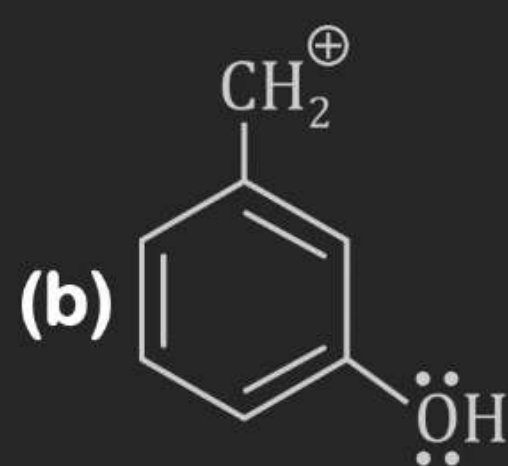
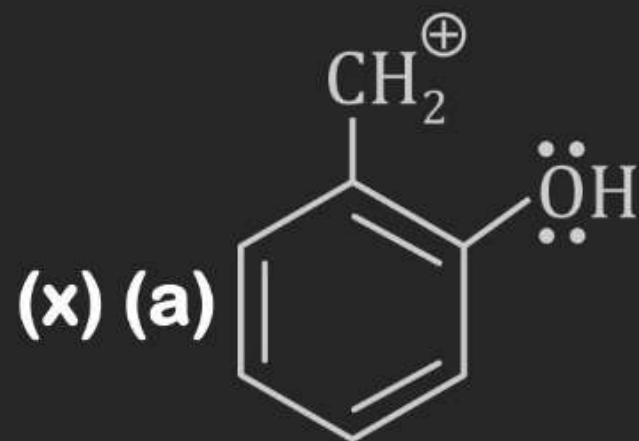
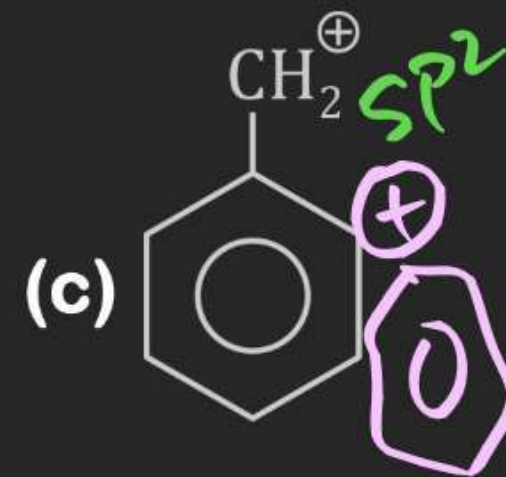
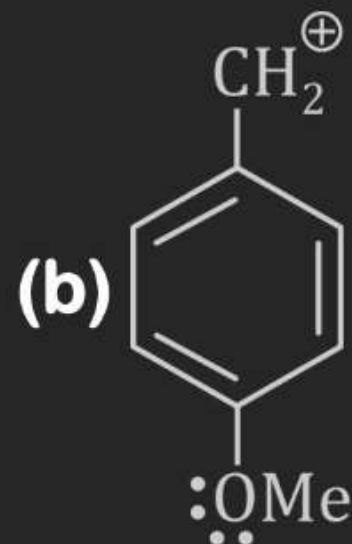
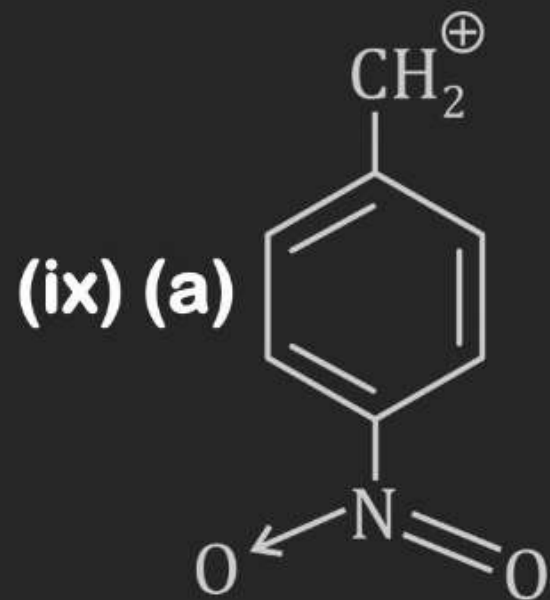
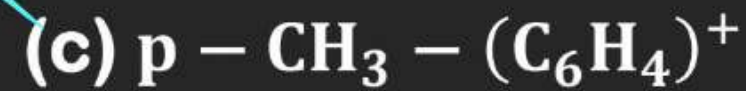
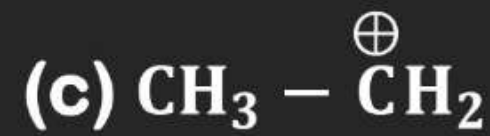
1.5 d En



sp

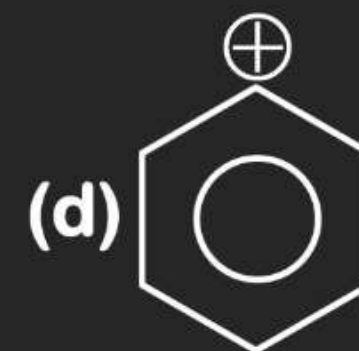
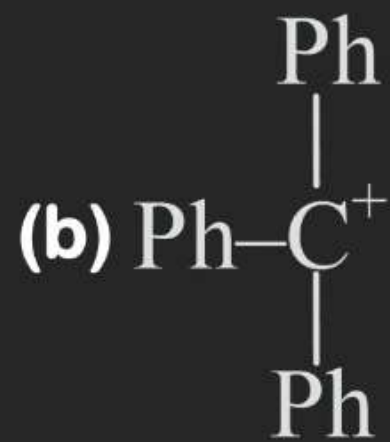
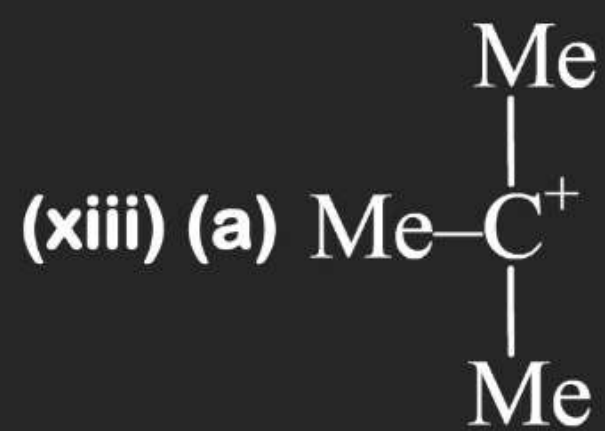
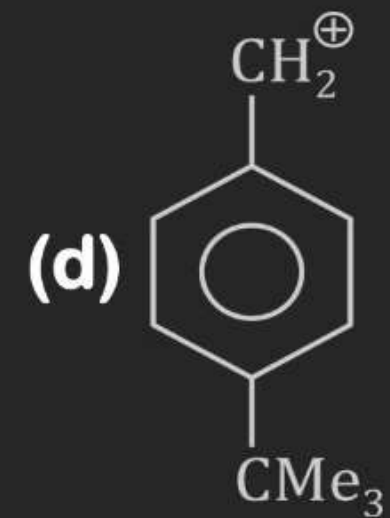
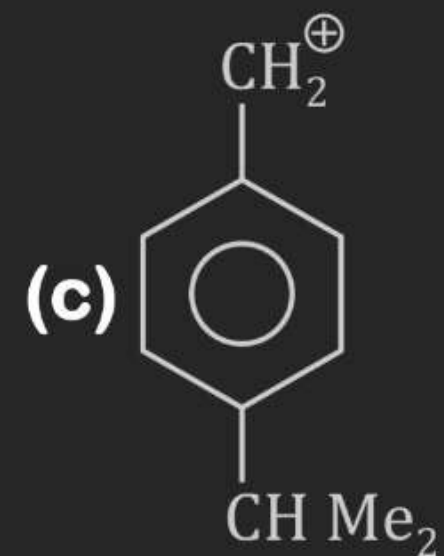
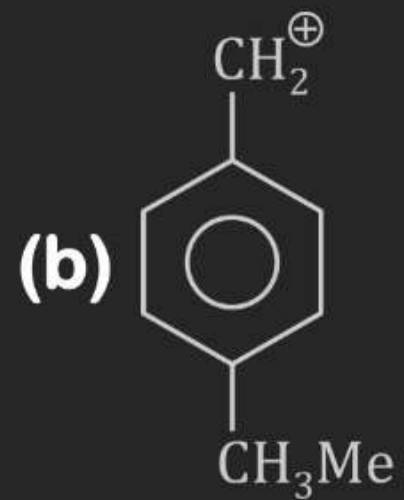
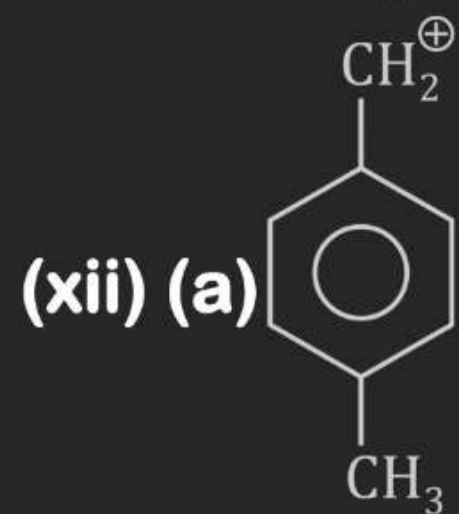
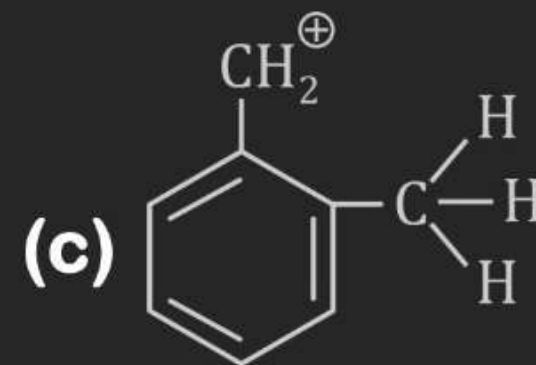
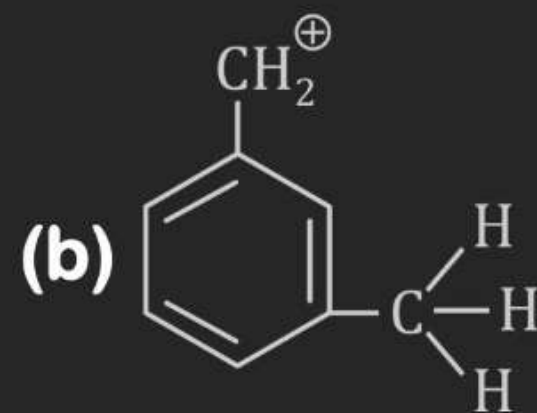
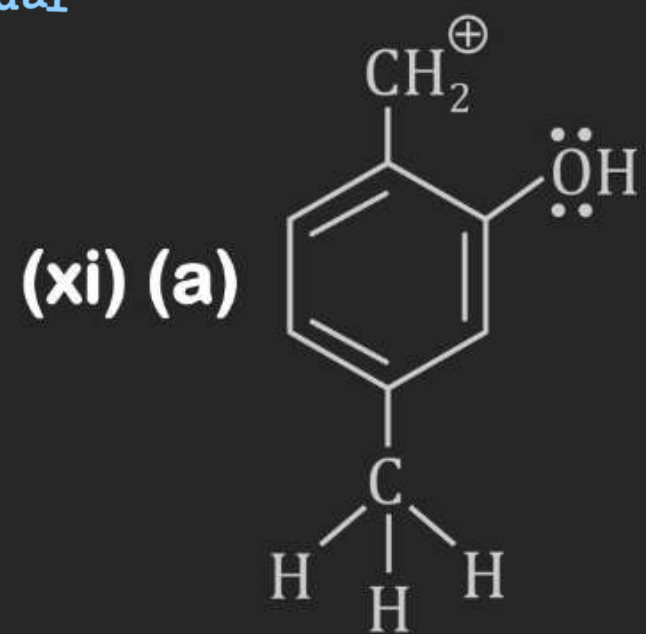


sp<sup>2</sup>



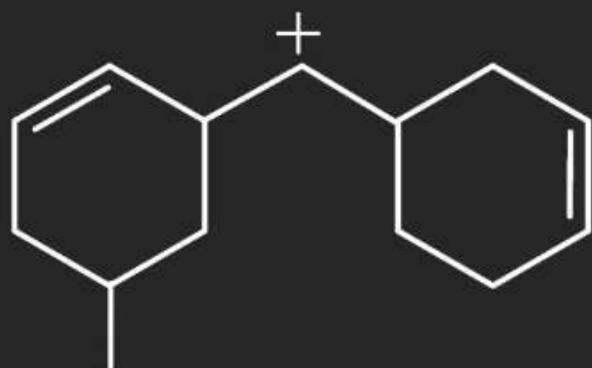
c > a > d > b



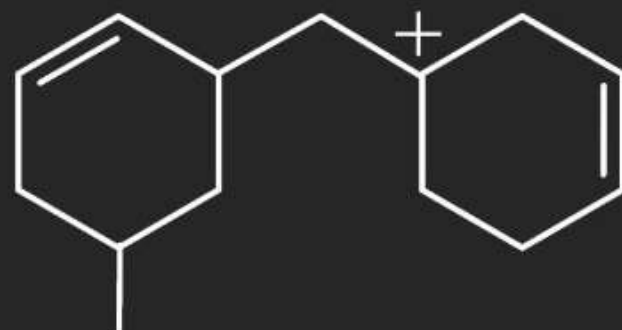


(xiv)

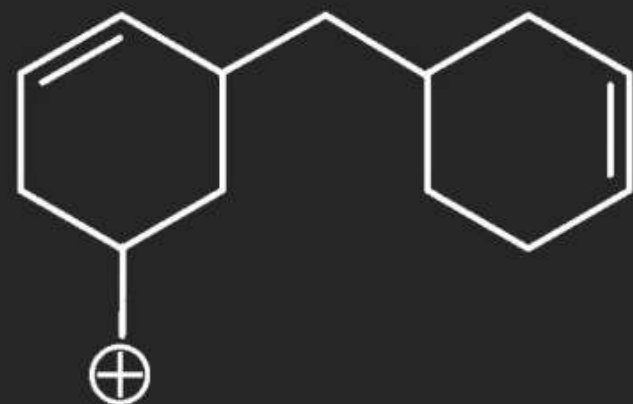
(a)



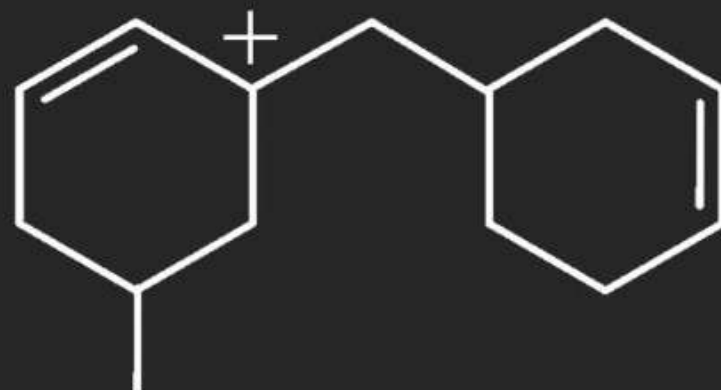
(b)



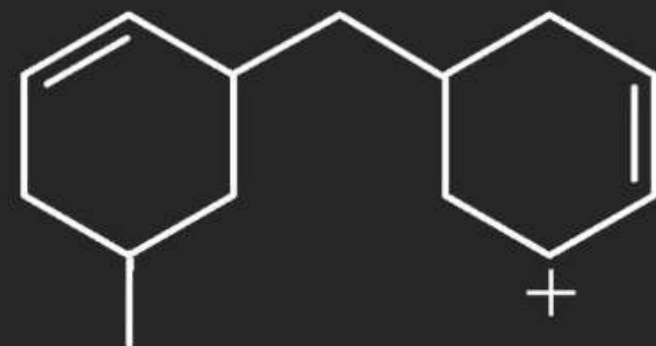
(c)



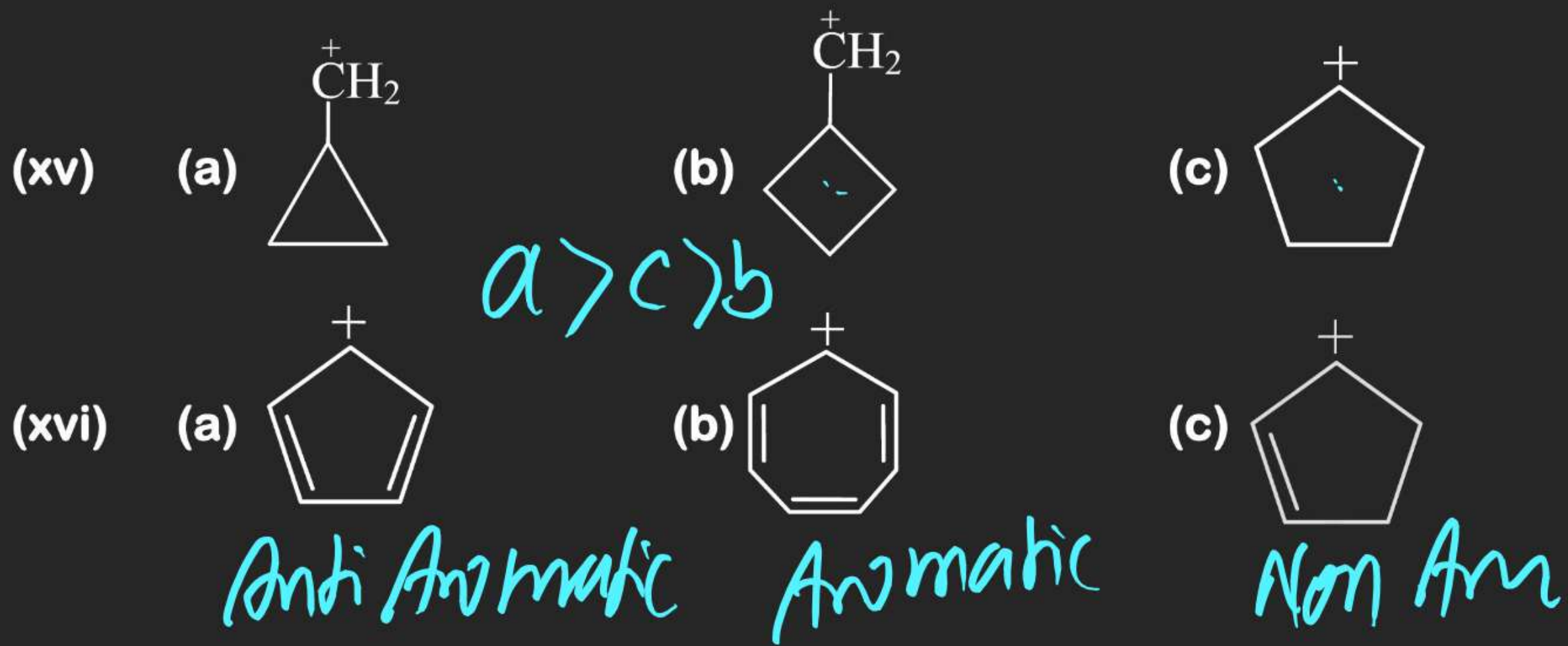
(d)



(e)

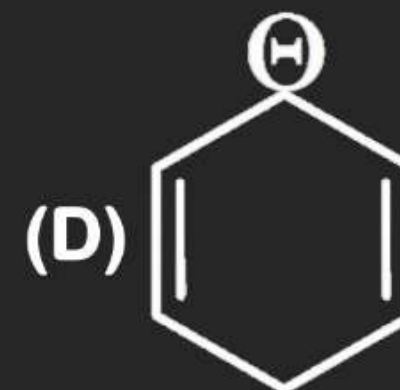
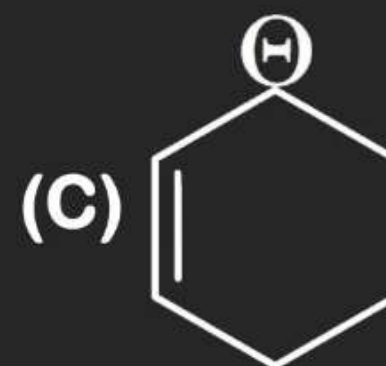
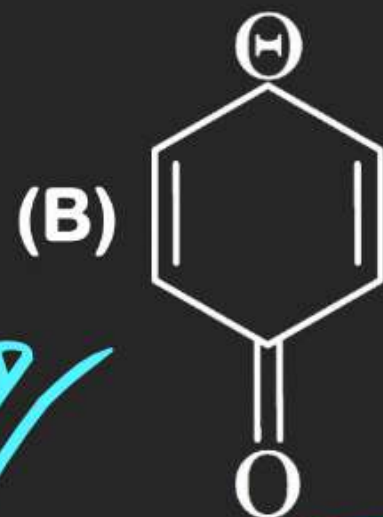
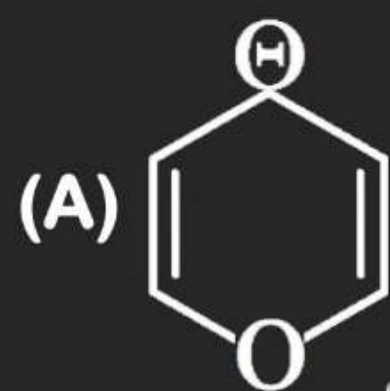




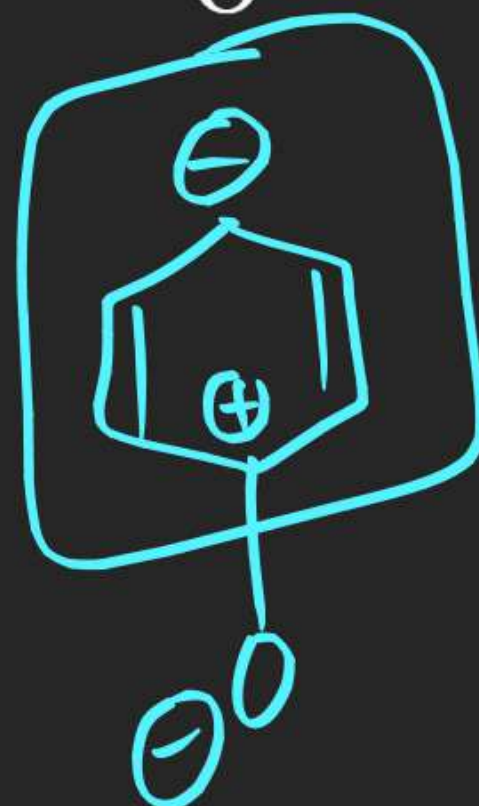


$b > c > a$

**Q.20** Identify the most stable anion.



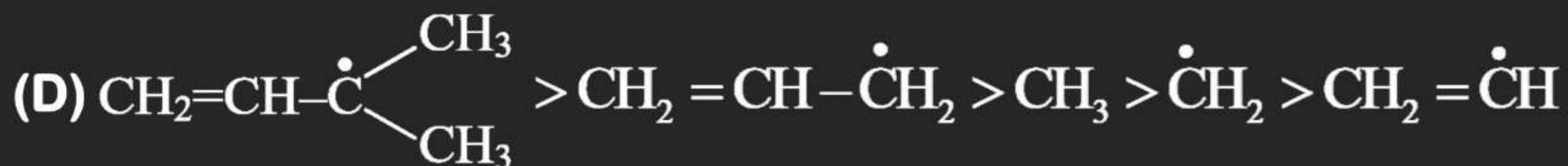
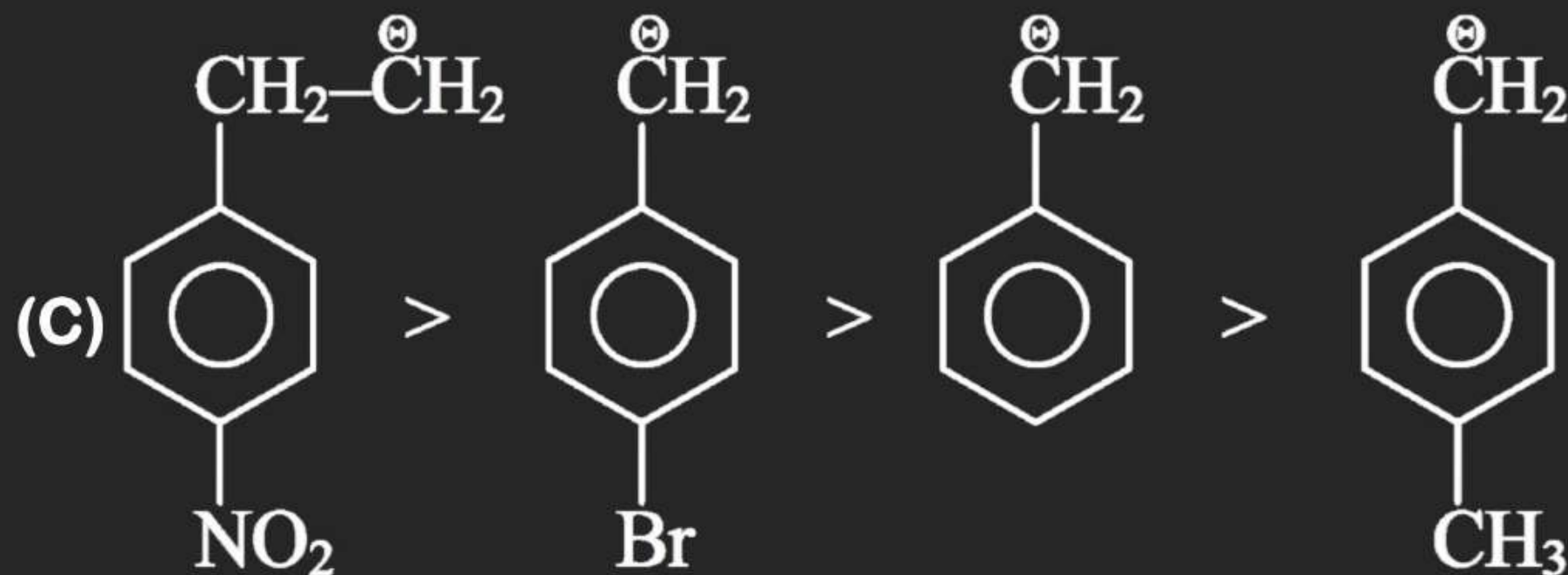
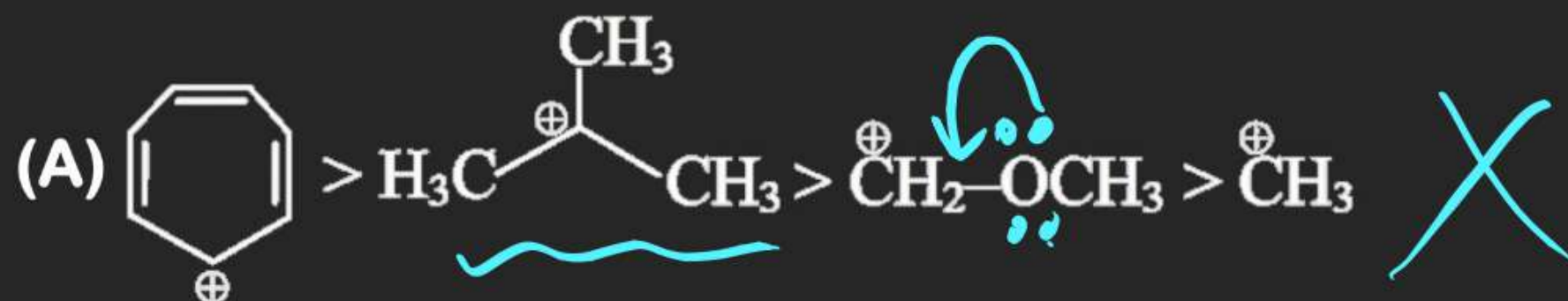
*Ans*



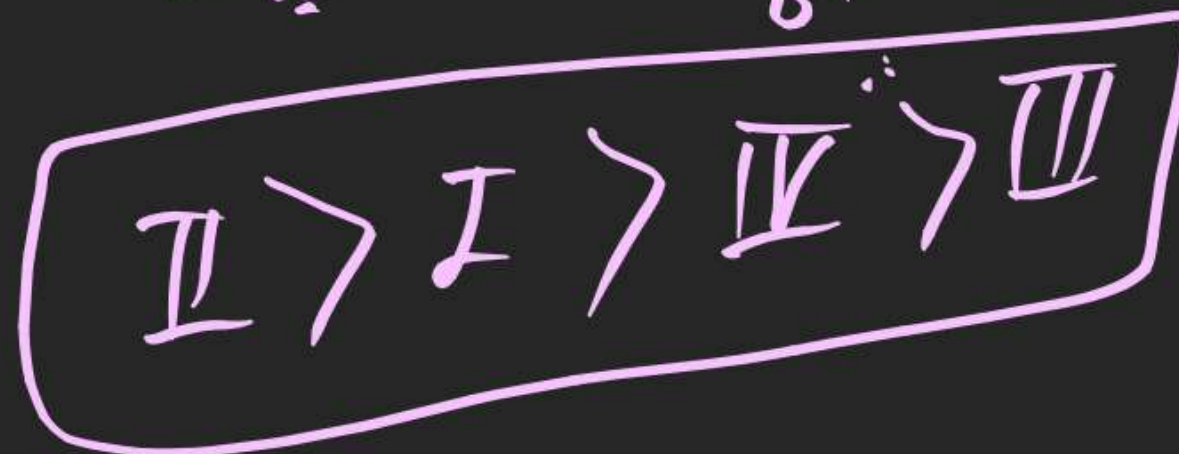
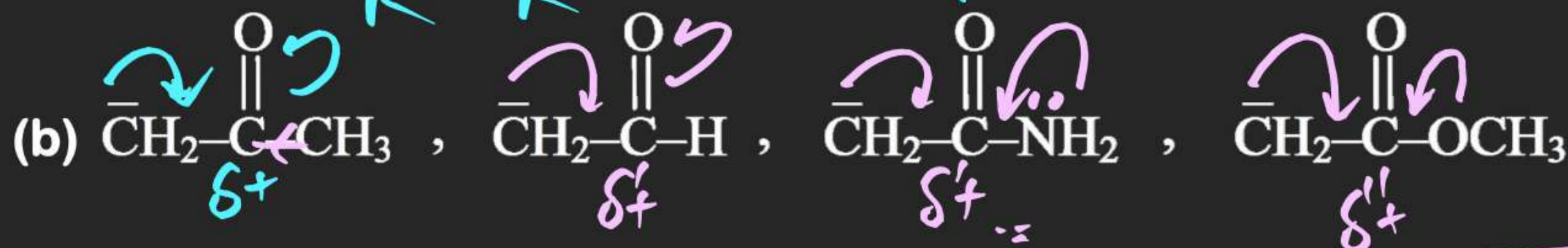
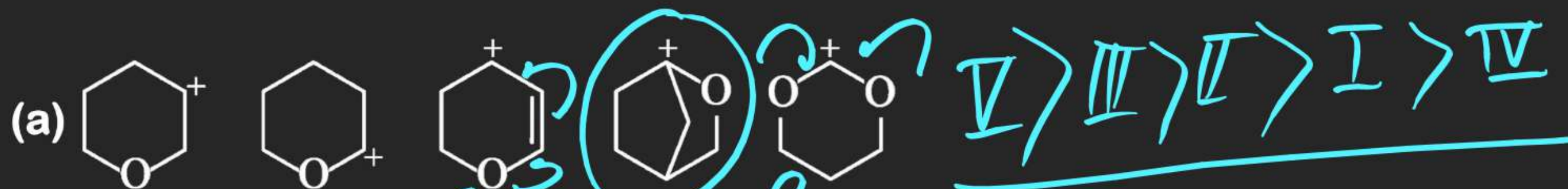
*Aromatic*



**Q.21 Correct order of stability:**



**Q.22** Rank the following sets of intermediates in increasing order of their stability giving appropriate reasons for your choice.

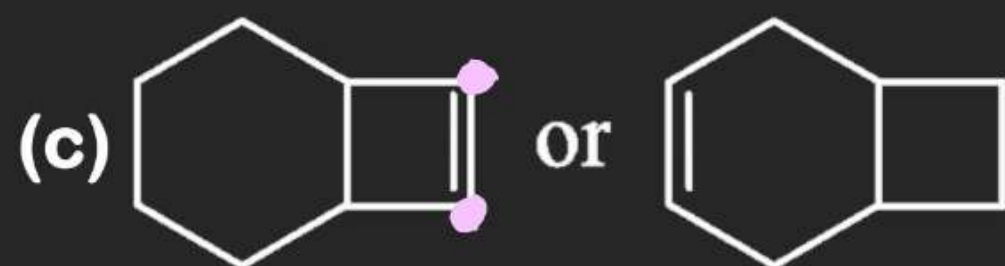




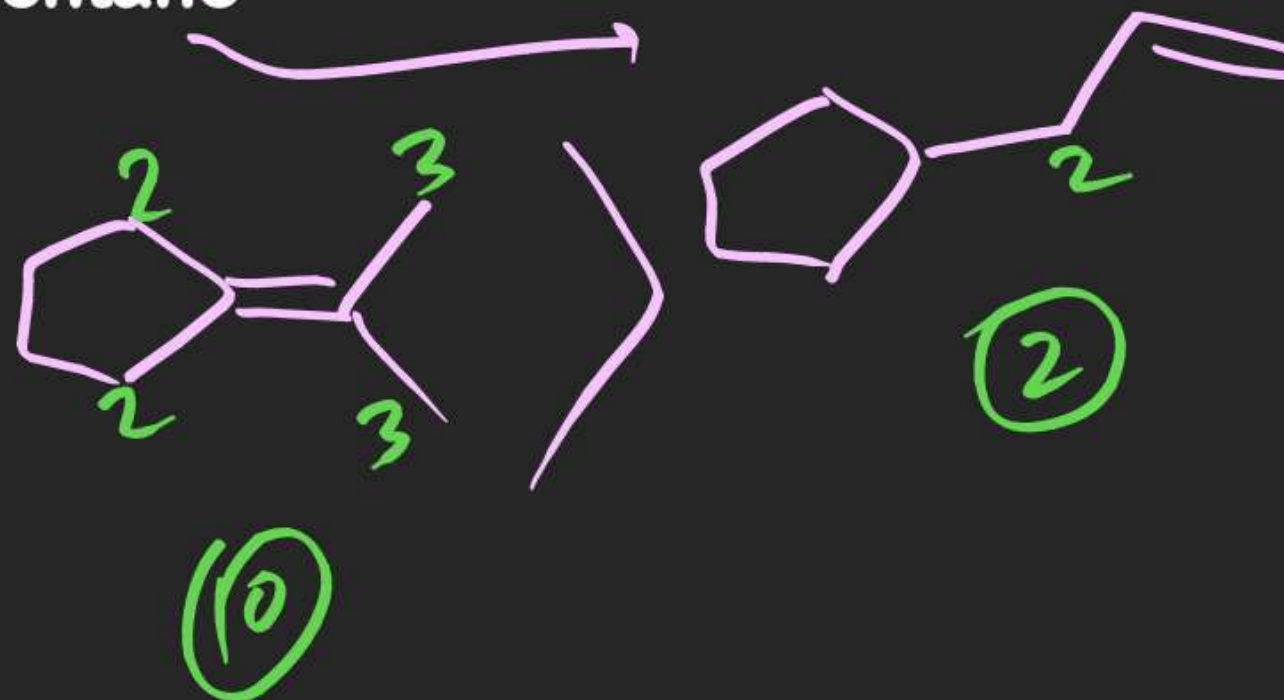
**Q.25** Choose the more stable alkene in each of the following pairs. Explain your reasoning.

(a) 1-Methylcyclohexene or 3-methylcyclohexene

(b) Isopropenylcyclopentane or allylcyclopentane



(II > I)

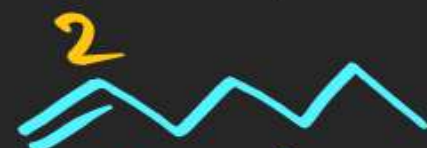


Q.26 Match each alkene with the appropriate heat of combustion:

Heats of combustion (kJ/mol) : 5293; 4658; 4650; 4638; 4632

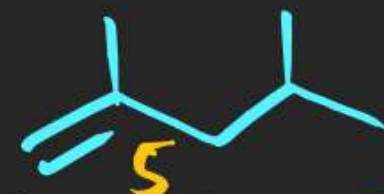
(a) 1-Heptene

7C



(b) 2,4-Dimethyl-1-pentene

7C



(c) 2,4-Dimethyl-2-pentene

7C



(d) 4,4-Dimethyl-2-pentene

7C



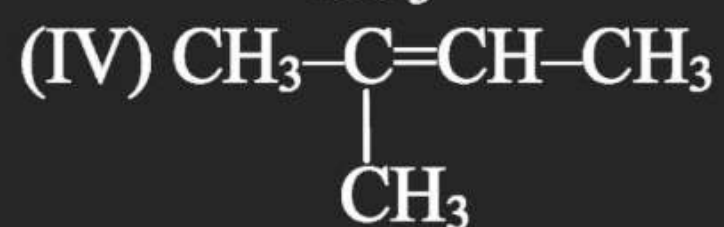
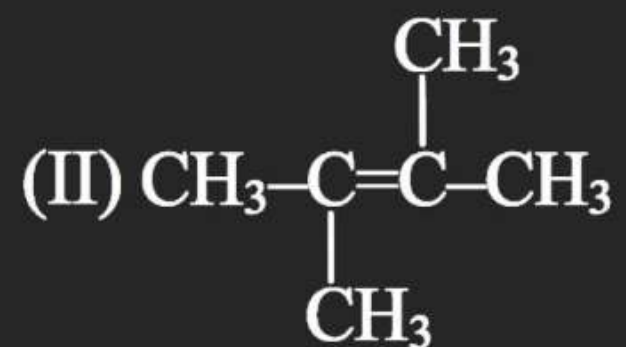
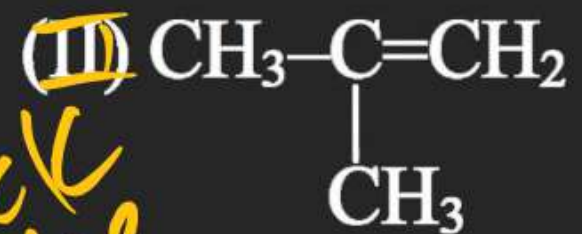
(e) 2,4,4-Trimethyl-2-pentene

8C

C  $\Rightarrow$  4632

NO. of C atom  
d stability

C  $\Rightarrow$  5293

**Q.27 Stability of:**

*check notes.*  
in the increasing order is :





**Q.29** Rank the following alkenes in decreasing order of heat of combustion values:



(I)



(II)



(III)



(IV)

(A) II > III > IV > I

(B) II > IV > III > I

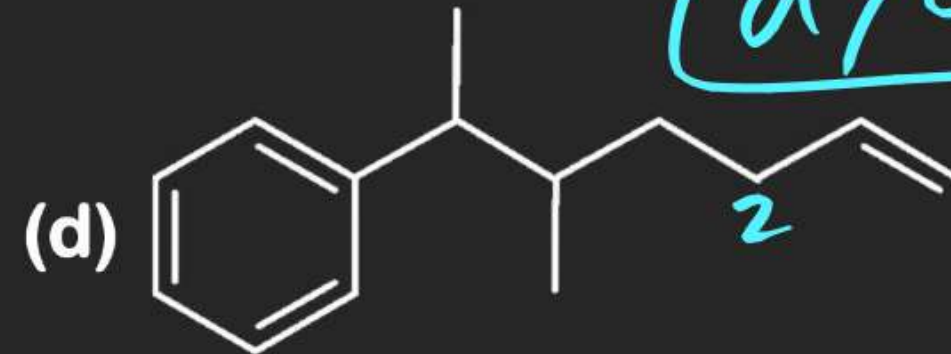
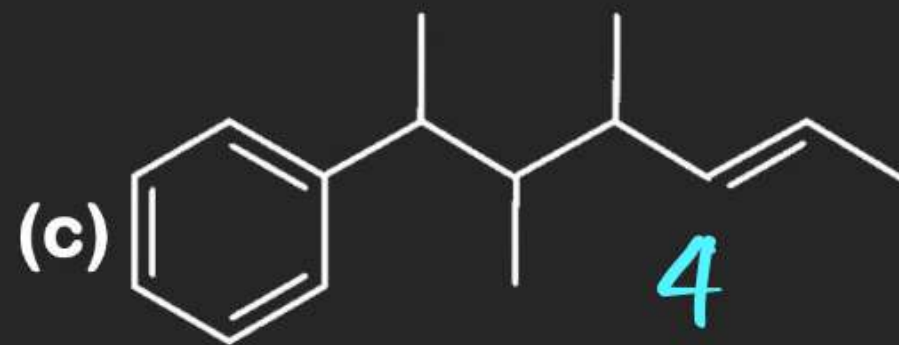
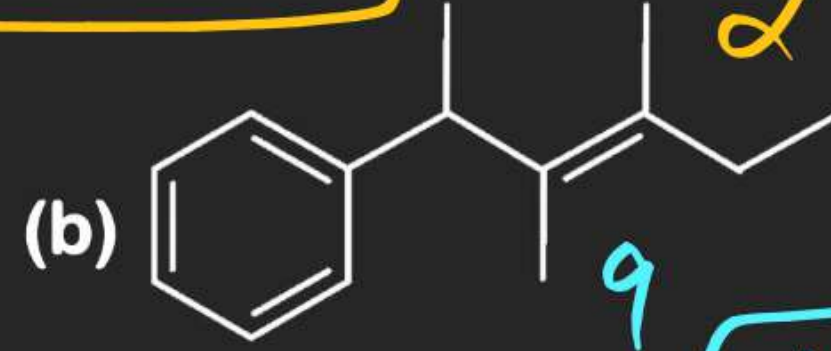
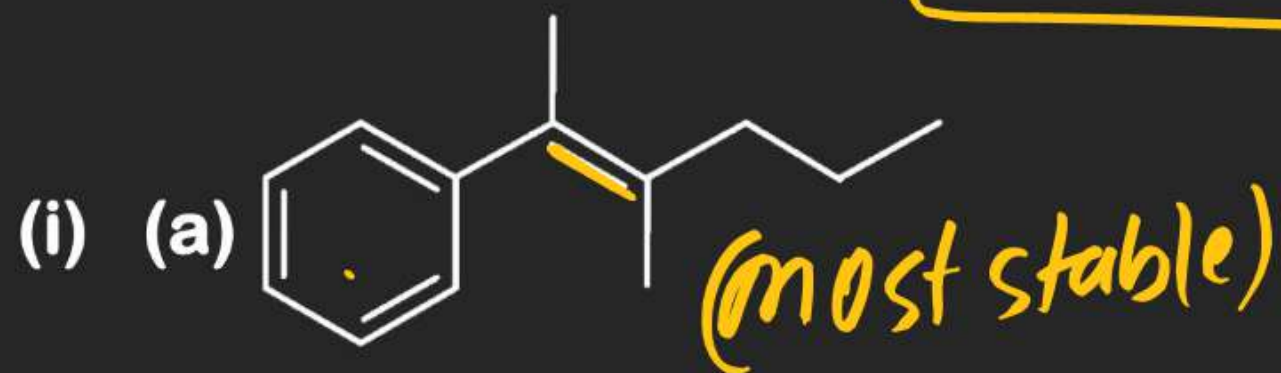
(C) I > III > IV > II

(D) I > IV > III > II

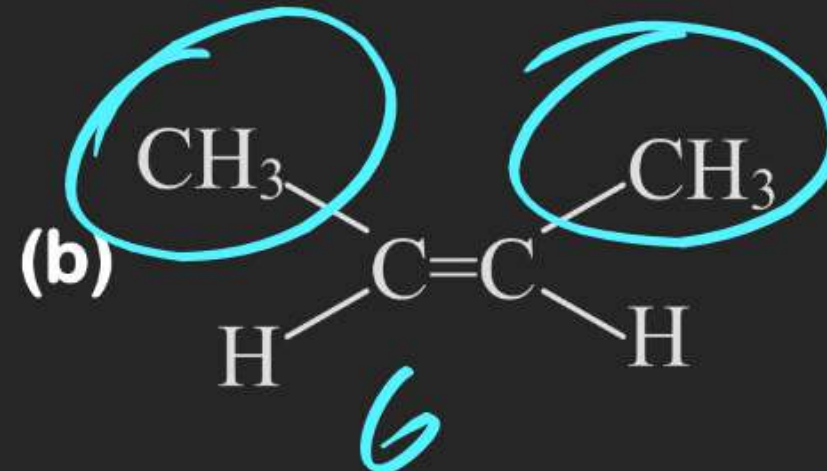
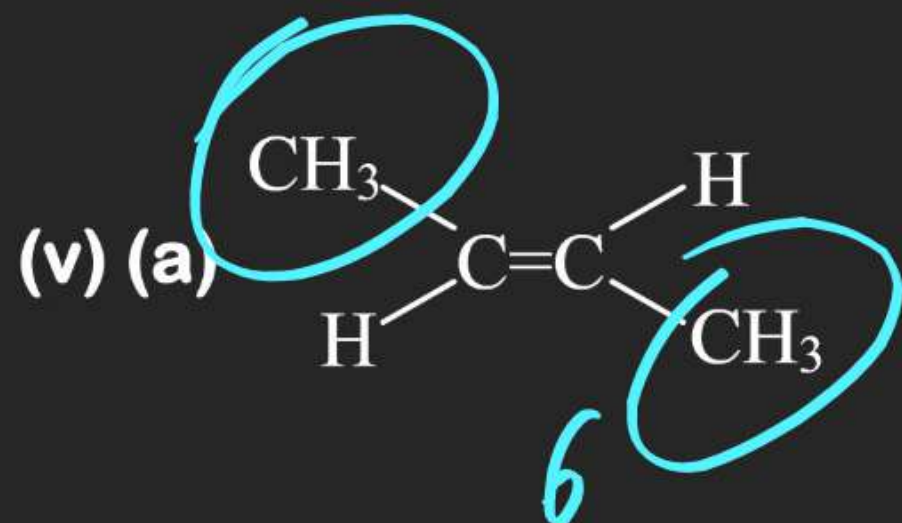
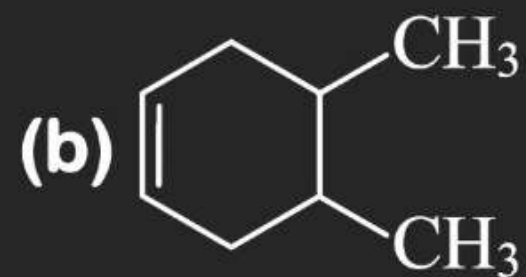
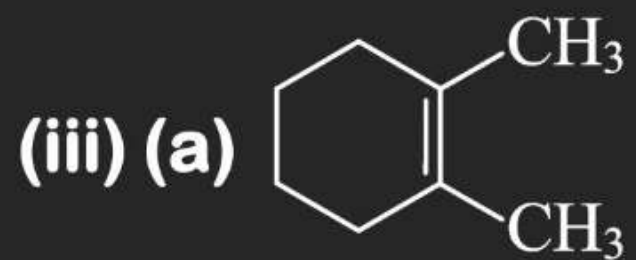
*heat of combustion*  $\propto$  stability

Q.30 Write decreasing order of heat of hydrogenation :

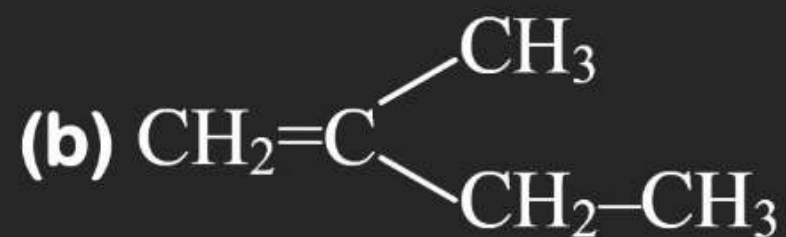
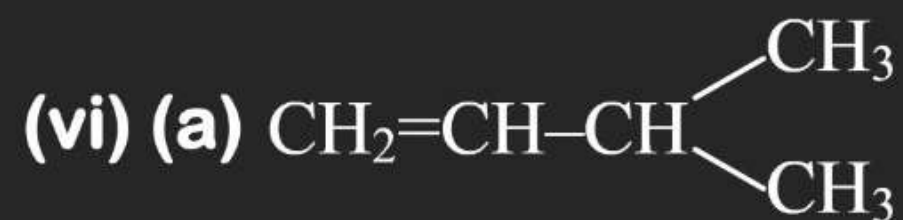
HOH & no. of  $\pi$  Bm  
 $\propto$  stability



$d > c > b > a$

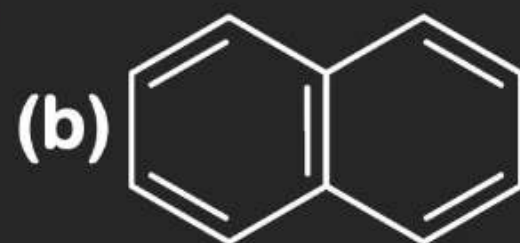
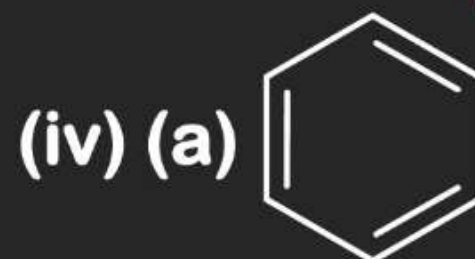
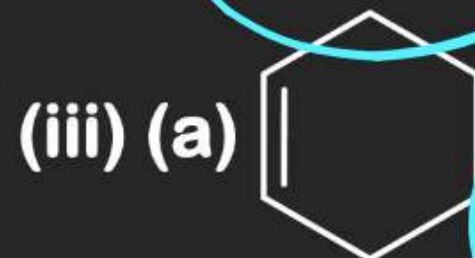
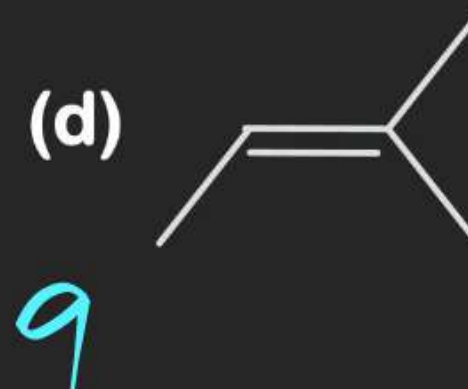
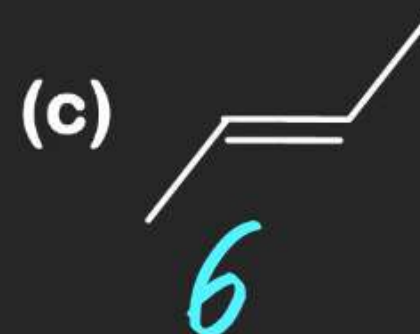
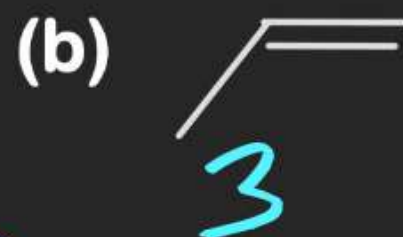
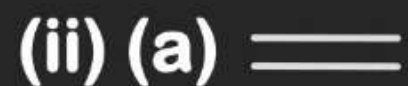
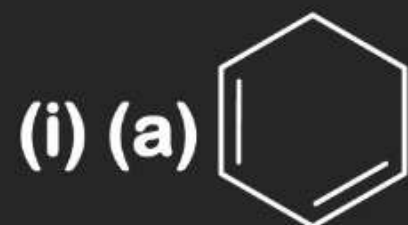


*b > a*

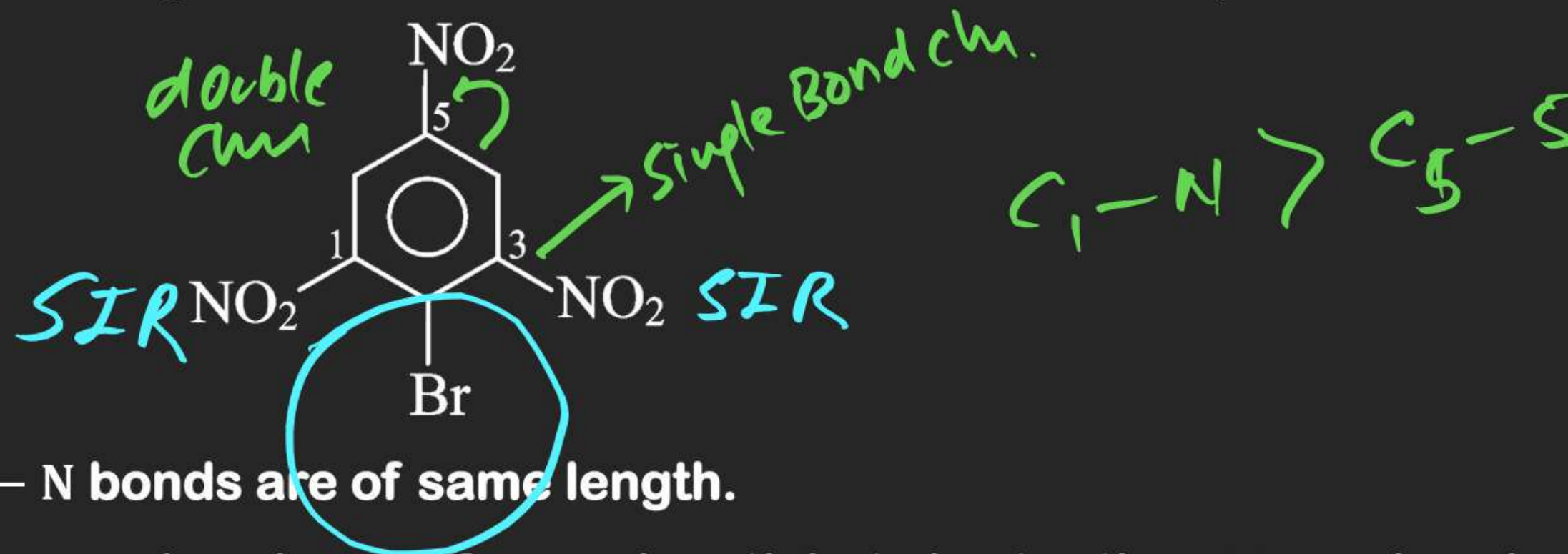




31. Write increasing order of heat of hydrogenation :  $\propto \frac{1}{\text{Stability}}$ .



38. Which of the following statements would be true about this compound:



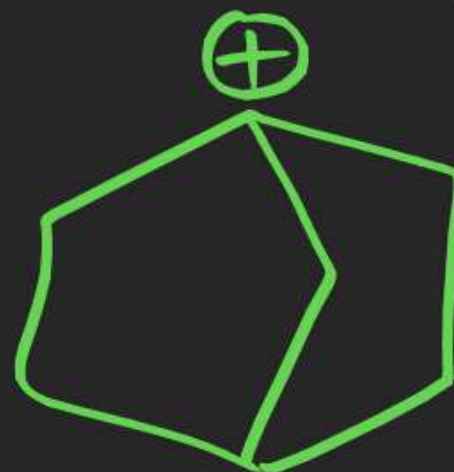
- (A) All three C – N bonds are of same length.
- (B) C1 – N and C3 – N bonds are of same length but shorter than C5 – N bond.
- (C) C1 – N and C3 – N bonds are of same length but longer than C5 – N bond.
- (D) C1 – N and C3 – N bonds are of different length but both are longer than C5 – N bond

40.

Why a cation like



is not possible.





(11) Aromatic

(13) Aromatic

(14) "

(15) Anti Aromatic

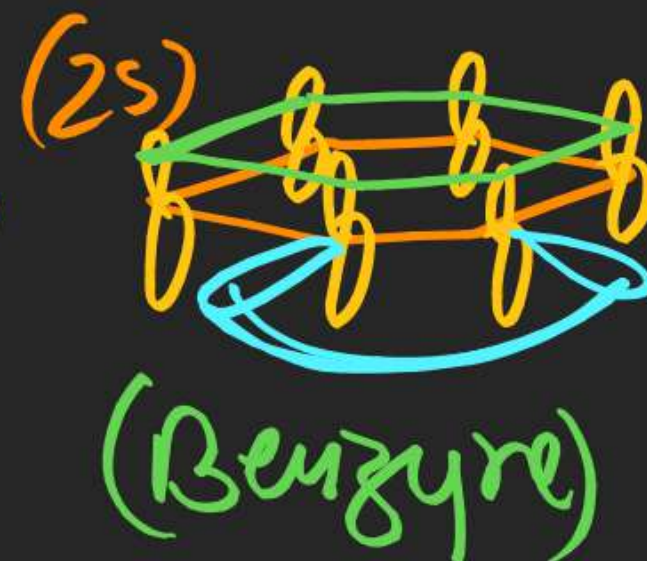
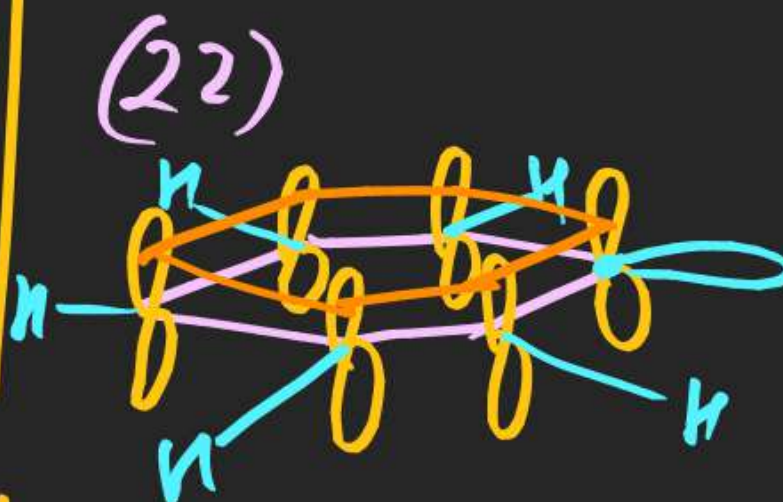
(16) Non Aromatic

(17) Aromatic

(18) — (20) (Non Aromatic)

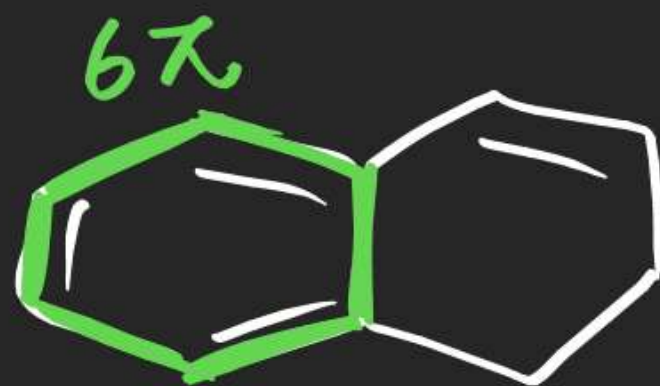


(21) — (30) Aromatic

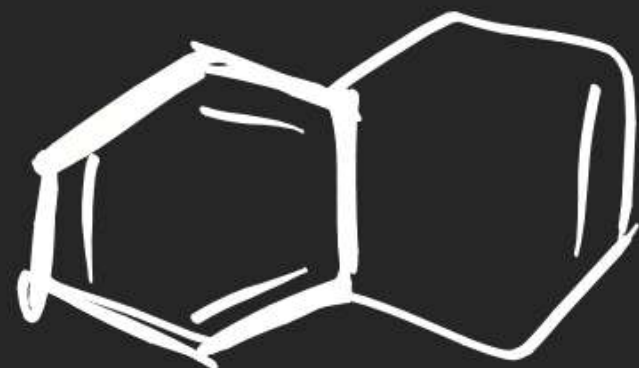




~~28~~ (28)



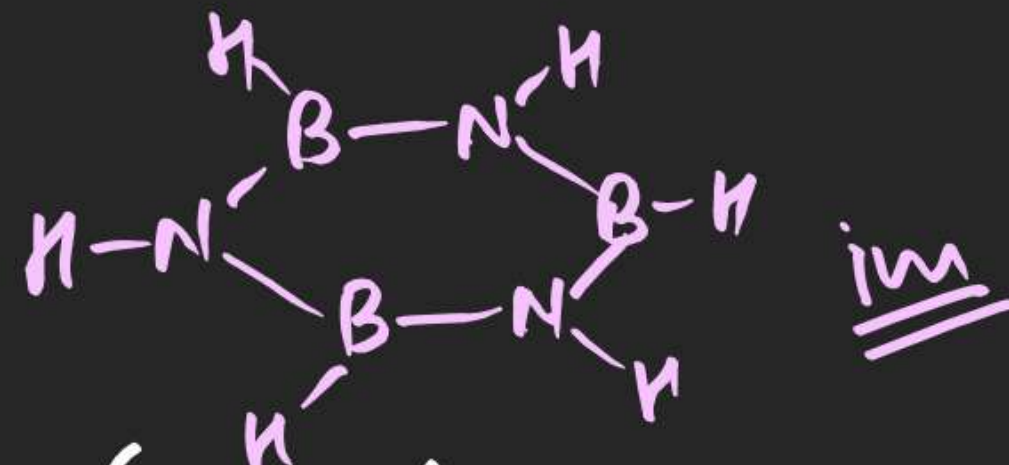
(29)



(31) Anti Aromatic

(32) Aromatic

Aromatic



(33) - (39) Aromatic

(40) Non Aromatic

(41) & (42) Aromatic

(43) Non Aromatic

(44) - (45) Aromatic

(46) Non Aromatic



(Tub shaped)

- (47) Aromatic
- (48) N. Aromatic
- (49) Aromatic
- (50) N. Aromatic
- (51) Aromatic
- (52) Aromatic

Sheet Exercises

5 km - nucleus  
equivalency