

NUCLEON CHEMISTRY

DPP

CLASSES FOR IIT-JEE

ORGANIC CHEMISTRY

Target IIT-JEE 2016

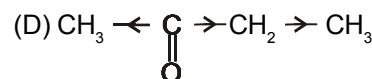
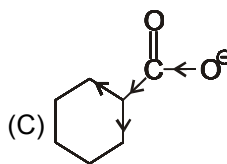
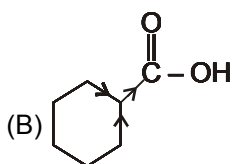
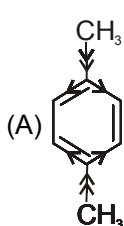
Class -XII

Topic : GOC

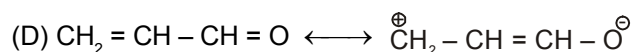
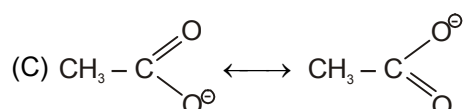
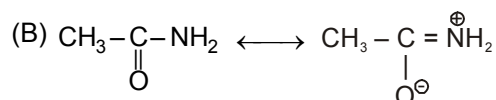
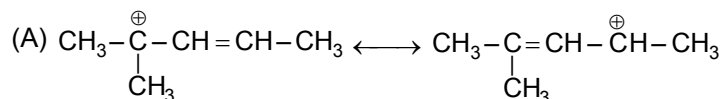
DPP - 1 to 3

DPP No - 01

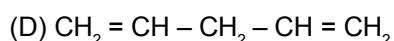
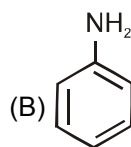
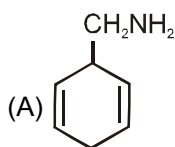
1. The inductive effect :
- (A) implies the atom's and group's ability to cause bond polarization
 - (B) increases with increase of distance
 - (C) implies the transfer of lone pair of electrons from more electronegative atom to the lesser electronegative atom in a molecule
 - (D) implies the transfer of lone pair of electrons from lesser electronegative atom to the more electronegative atom in a molecule
2. Which of the following orbital overlaps is involved in the formation of the carbon-carbon single bond in the molecule $\text{HC}\equiv\text{C}-\text{CH}=\text{CH}_2$
- (A) $\text{sp}^3 - \text{sp}^3$ (B) $\text{sp}^2 - \text{sp}^3$ (C) $\text{sp} - \text{sp}^2$ (D) $\text{sp}^3 - \text{sp}$
3. Inductive effect involves :
- (A) Delocalisation of σ - electrons (B) Partial displacement of σ - electrons
(C) Delocalisation of π - electron (D) Displacement of lone pair electrons.
4. Which of the following has incorrect direction of Inductive effect.



5. Decreasing -I effect of given groups is -
- (a) $-\text{CN}$ (b) $-\text{NO}_2$ (c) $-\text{NH}_2$ (d) $-\text{F}$
(A) $b > a > d > c$ (B) $b > c > d > a$ (C) $c > b > d > a$ (D) $c > b > a > d$
6. Which of the following resonating structure contributes equally to the resonance hybrid.



7. Which of the following compounds have delocalisation of π -electrons ?



8. Which of the following statements is not true about the resonance contributing structures of a resonance hybrid -

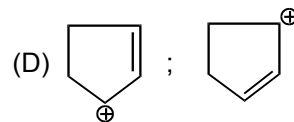
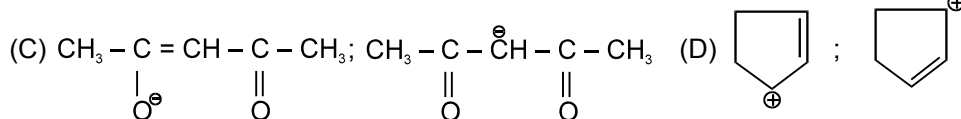
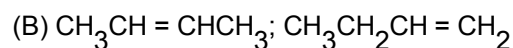
(A) Contributing structures contribute to the resonance hybrid in proportion of their energies

(B) Equivalent contributing structures make the resonance very important

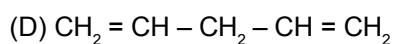
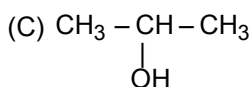
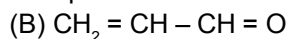
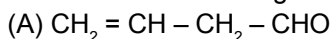
(C) Contributing structures represent hypothetical molecules having no real existence

(D) Contributing structures are less stable than the resonance hybrid

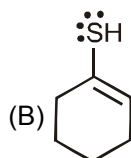
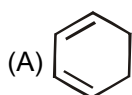
9. Which of the following is not a pair of resonating structures ?



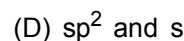
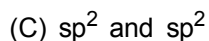
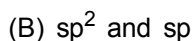
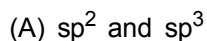
10. In which of the following delocalisation of π -electron is possible.




11. Which of the following species have conjugated system ?



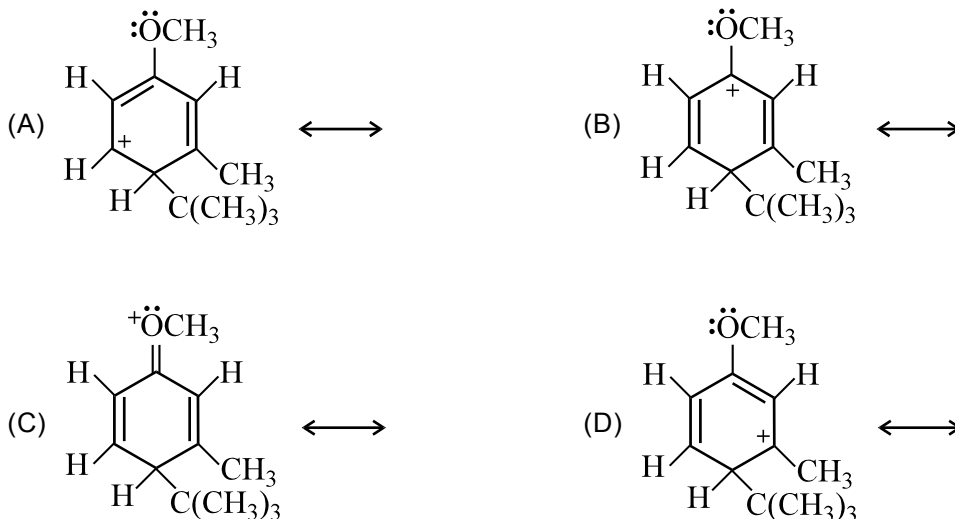
12. The type of hybrid orbitals used by C and N in the formation of C-N bond in pyrrole is :



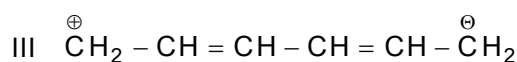
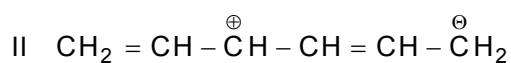
DPP No - 02

1. Which type of orbitals C and O use in the formation of C–O bond in furan, :
- (A) sp^2 and sp^3 (B) sp^2 and sp (C) sp^2 and sp^2 (D) sp^2 and p

2. Which is the most stable resonance form ?

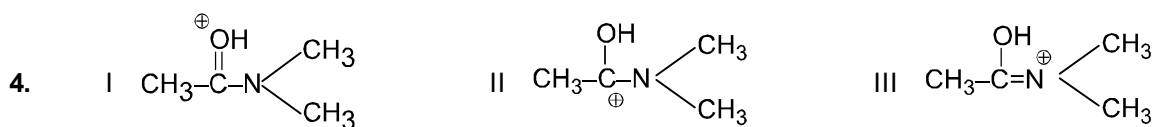


3. I $CH_2 = CH - CH = CH - CH = CH_2$



Among these three canonical structures (through more are possible) what would be their relative contribution in the hybrid :

- (A) $I > II > III$ (B) $III > II > I$ (C) $I > III > II$ (D) $III > I > II$



The stability order of these canonical structures is :

- (A) $I > II > III$ (B) $II > III > I$ (C) $I > III > II$ (D) $III > I > II$

5. Which of the following statements is NOT true ?

- (A) Resonance forms must obey normal valency rules
 (B) Resonance forms are in equilibrium
 (C) The hybrid is more stable than the individual resonance forms
 (D) Resonance forms differ only in the distribution of electrons

6. The correct order of decreasing hyperconjugative effect of the following compounds is -

- (A) $CH_3CH=CH_2 > CH_3CH_2CH=CH_2 > (CH_3)_2CHCH=CH_2$
 (B) $(CH_3)_2CHCH=CH_2 > CH_3CH=CH_2 > CH_3CH_2CH=CH_2$
 (C) $(CH_3)_2CHCH=CH_2 > CH_3CH_2CH=CH_2 > CH_3CH=CH_2$
 (D) $CH_3CH_2CH=CH_2 > CH_3CH=CH_2 > (CH_3)_2CHCH=CH_2$

7. Which of the following molecule has longest C=C bond length ?
 (A) $\text{CH}_2 = \text{C} = \text{CH}_2$ (B) $\text{CH}_3 - \text{CH} = \text{CH}_2$

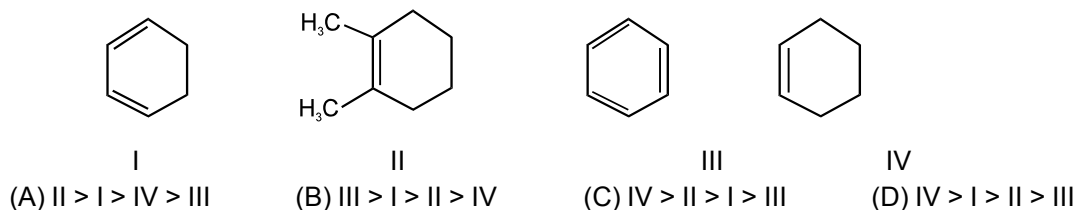


8. In hyperconjugation there is overlap between :
 (A) p- and π -orbitals (B) 2 π - orbitals (C) d-and- π -orbital (D) σ -and π - orbitals

9. Hyperconjugation phenomenon is possible in :

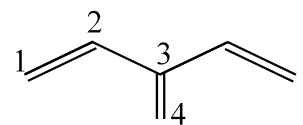


10. The decreasing order of bond length of C = C bond in the following compounds is:



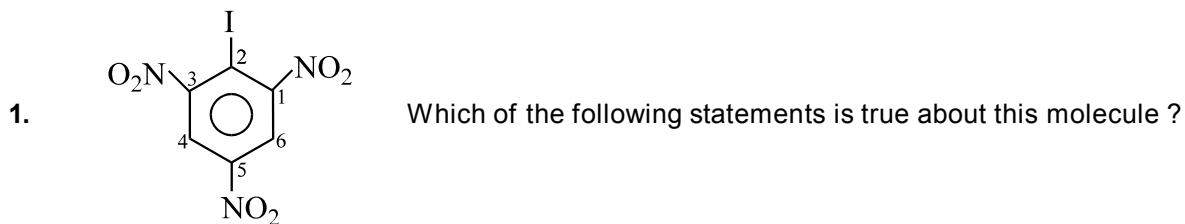
11. Which one of the following compounds maximum π electron density on aromatic ring :



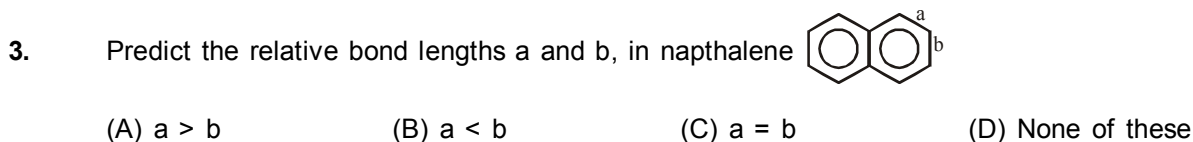
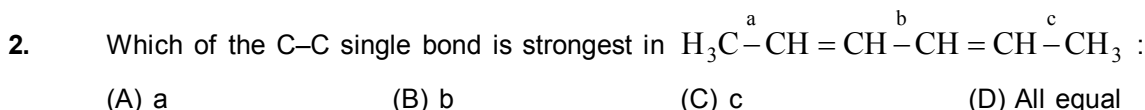
12.  Which of the following statements is true about this molecule .

- (A) C1-C2 and C3-C4 bonds are of same length.
 (B) C1-C2 bond is shorter than C3-C4 bond.
 (C) C1-C2 bond is longer than C3-C4 bond.
 (D) C1-C2 and C2-C3 bonds are of same length.

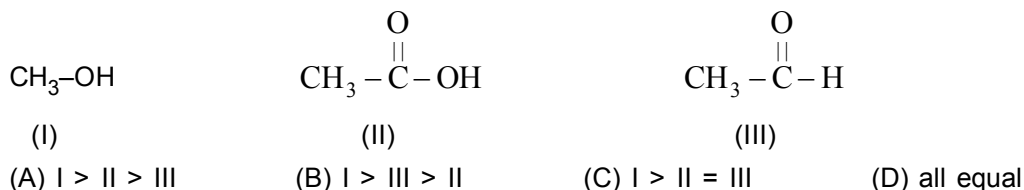
DPP No - 03



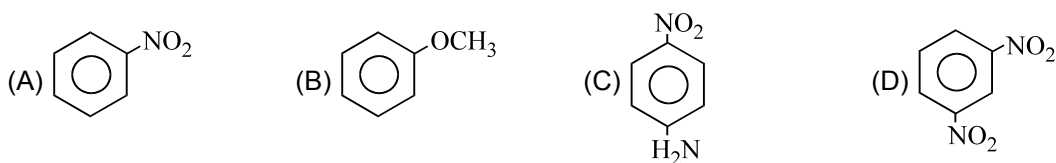
- (A) C5-N bond is longer than C1-N and C3-N bonds.
 (B) C5-N bond is shorter than C1-N bond and latter is shorter than C3-N bond.
 (C) All three C-N bonds are of same length.
 (D) C1-N and C3-N bonds are of same length but they are longer than C5-N bond.



4. The C-O bond lengths in the following three compounds is :



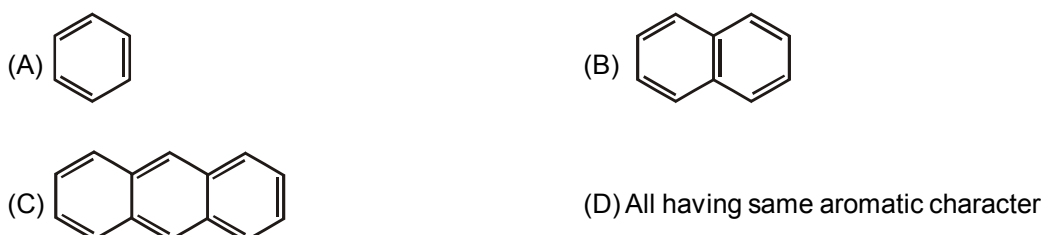
5. In which of the following molecules π - electron density in ring is minimum :



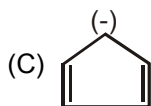
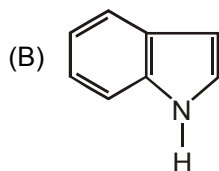
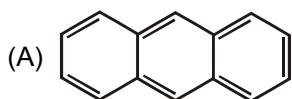
6. In which of the following molecules π - electron density in ring is maximum :



7. Which has the most aromatic nature ?

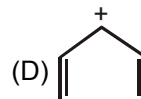
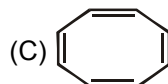
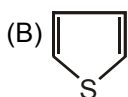
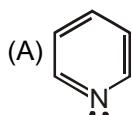


8. Which of the following is aromatic species ?

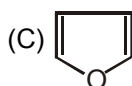
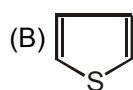
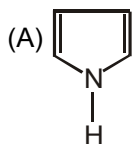


(D) All

9. Which of the following is anti-aromatic species ?

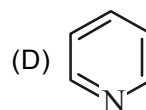
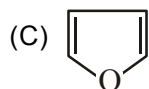
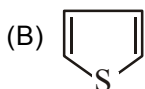
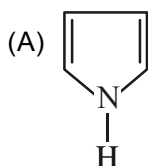


10. Which is the most aromatic in character ?

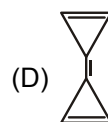
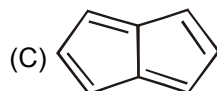
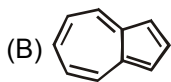
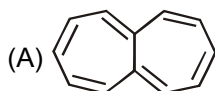


(D) All having same aromatic character

11. Which is the most aromatic in character ?



12. Identify the aromatic compound ?



ANSWER KEY

DPP No - 01

1. (A) 2. (C) 3. (B) 4. (D) 5. (A) 6. (C) 7. (B)
8. (A) 9. (B) 10. (B) 11. (D) 12. (C)

DPP No - 02

1. (C) 2. (C) 3. (A) 4. (D) 5. (B) 6. (A) 7. (D)
8. (D) 9. (D) 10. (B) 11. (B) 12. (B)

DPP No - 03

1. (D) 2. (B) 3. (B) 4. (A) 5. (D) 6. (B) 7. (A)
8. (D) 9. (D) 10. (B) 11. (D) 12. (B)



NUCLEON CHEMISTRY
CLASSES FOR IIT-JEE

DPP
Organic Chemistry
Target IIT-JEE 2016

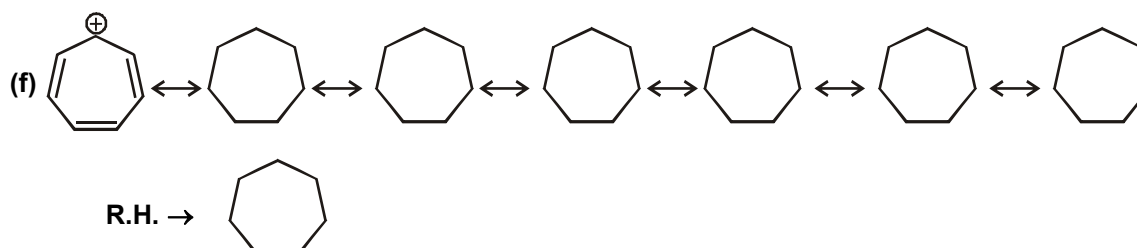
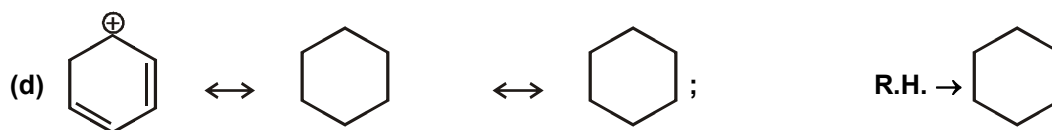
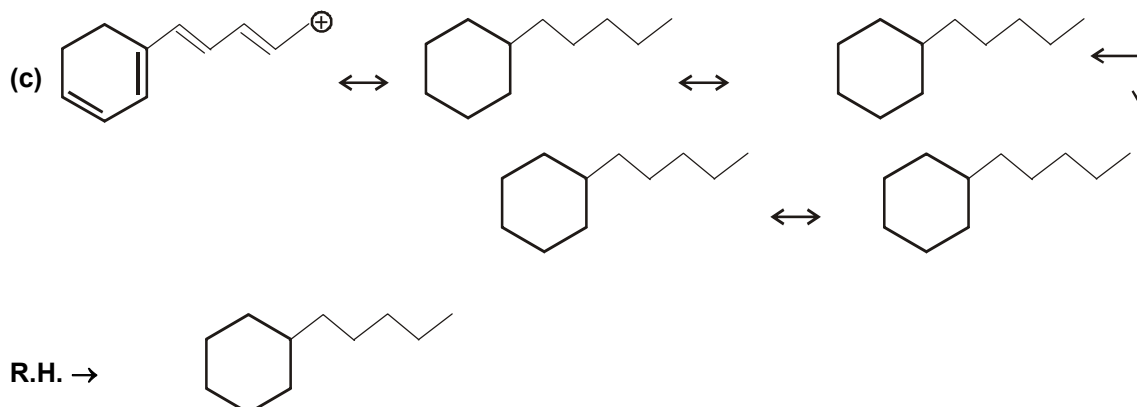
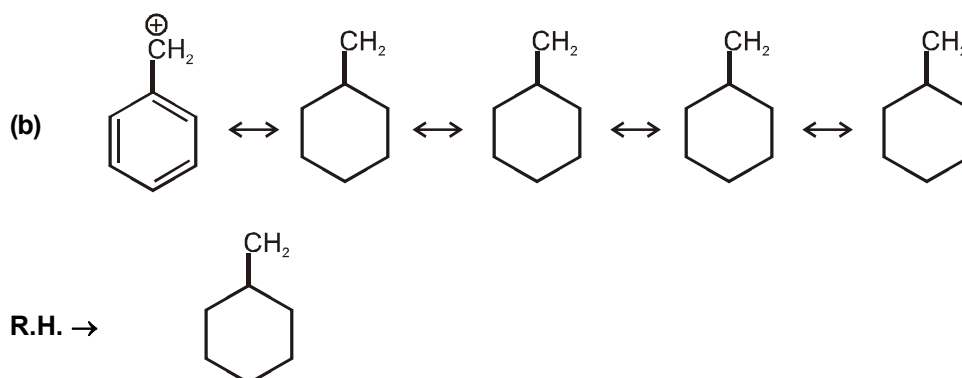
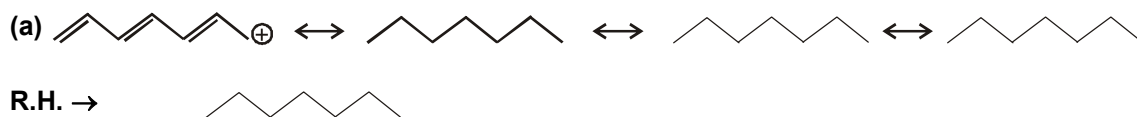
Class -XIII

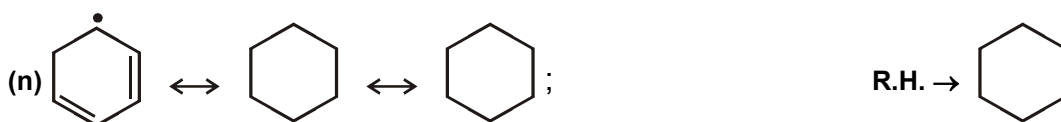
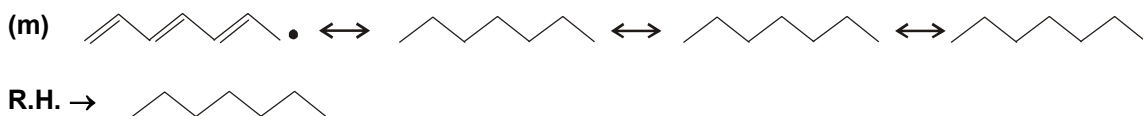
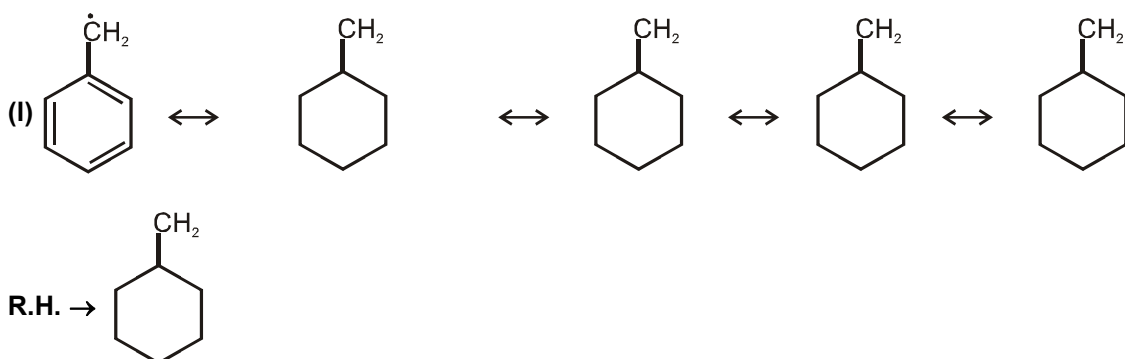
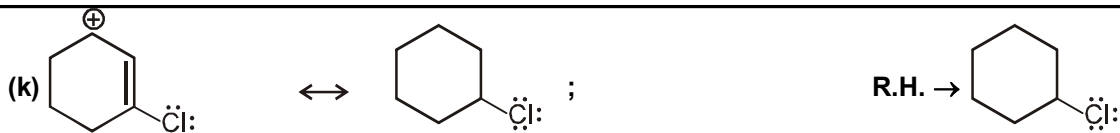
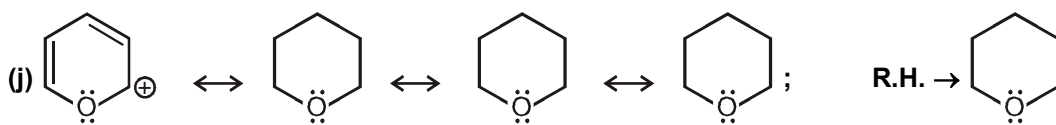
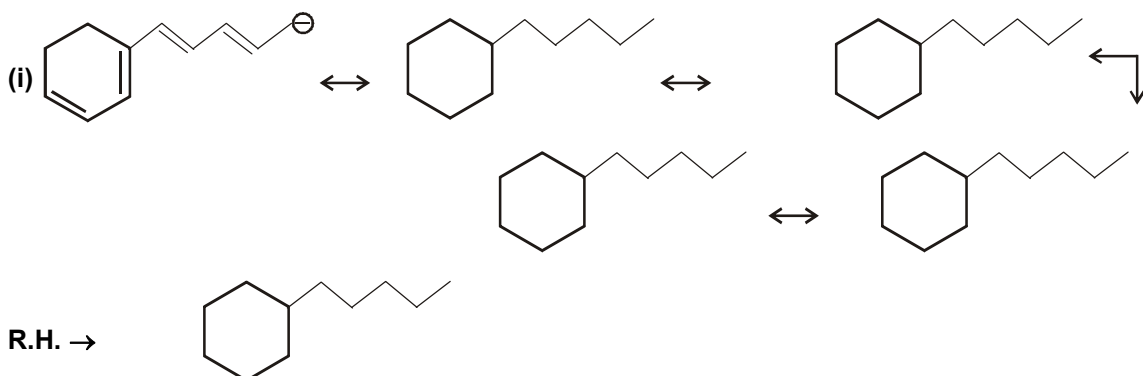
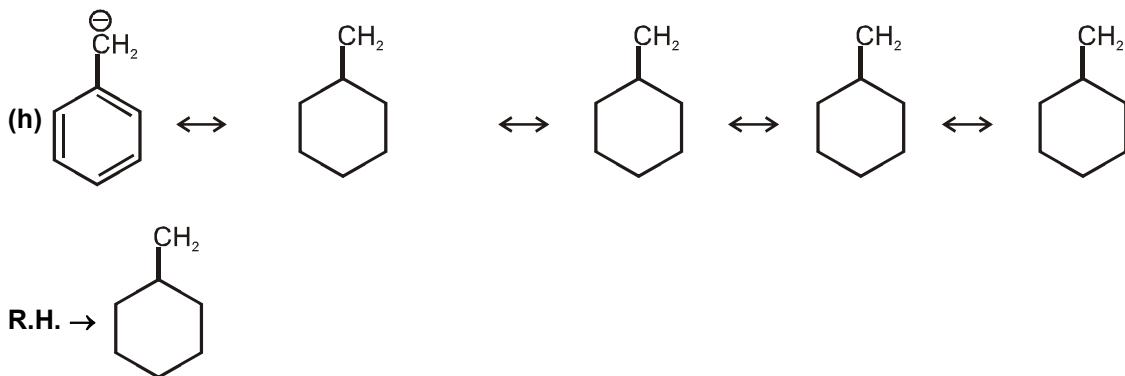
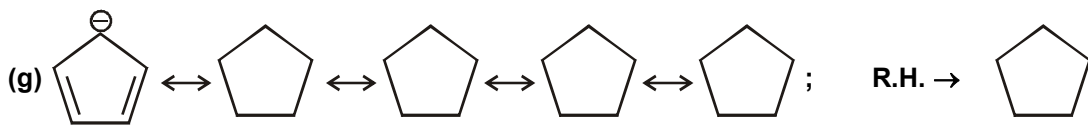
DATE : 10/08/2015

DPP - 4,5

Topic - GOC

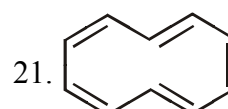
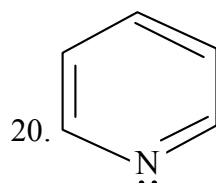
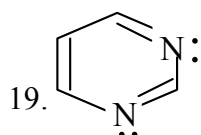
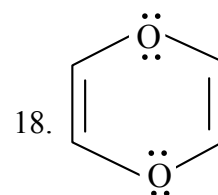
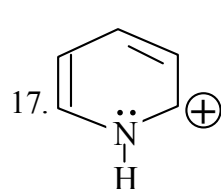
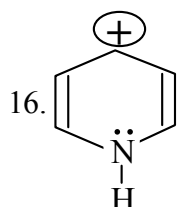
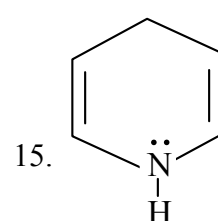
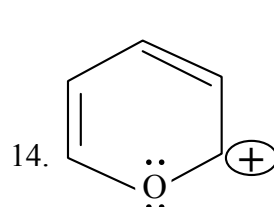
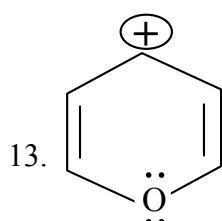
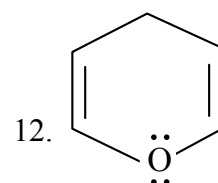
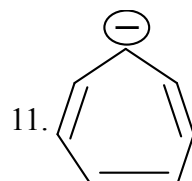
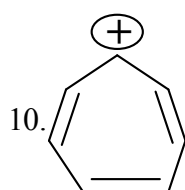
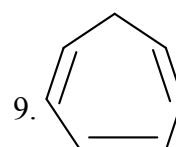
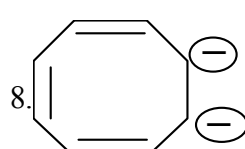
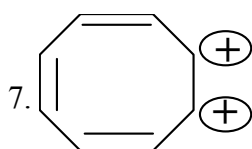
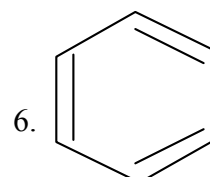
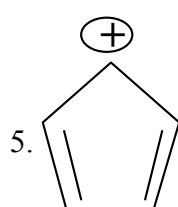
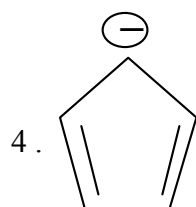
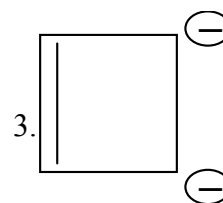
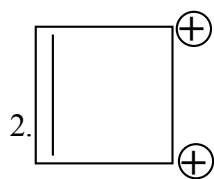
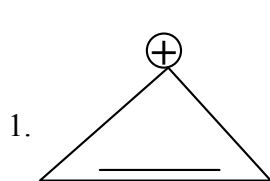
1. Draw all possible R.S. for each of the following

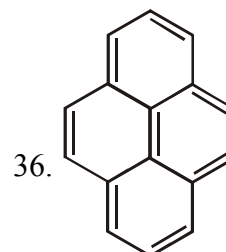
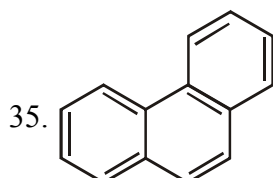
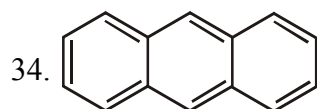
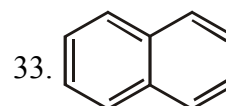
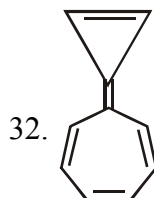
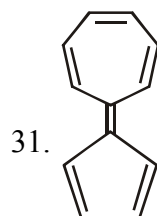
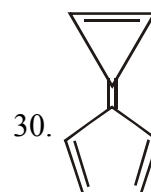
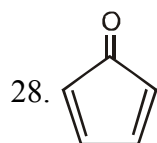
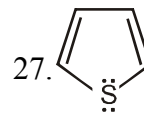
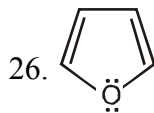
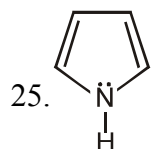
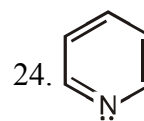
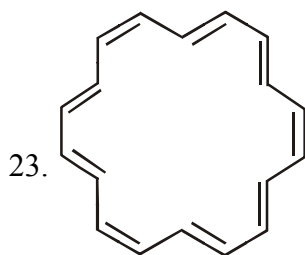
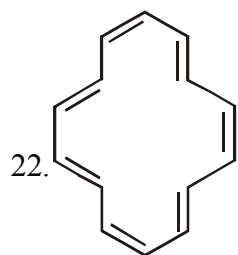




DPP # 5

Q. Mark each of the following as aromatic / Anti Aromatic or Non-Aromatic compound and also mention the no. of π electrons in each





Answer key

DPP # 9

1. A(2)	2. A(2)	3. A (6)	4. (A) 6	5. AA (4)	6. A (6)	7. A (6)
8.A (10)	9. NA (6)	10. A(6)	11. AA (8)	12.NA (6)	13. A (6)	14. A(6)
15. NA(6)	16. A (6)	17. A (6)	18. NA (6)	19. A (6)	20. A (6)	
21. NA (10) Non planar		22. A (14)	23. A (6)	24. A (6)	25. A (6)	26.A(6)
27. A (6)	28. AA(4)	29.AA (4)	30. A (2) , (6) isolated		31. A (6) (6) isolated	
32. Na	33. A (10)	34. A (14)	35. A (14)	36. A (14) peripheral aromaticity		