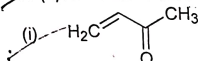


CC-1(Organic)

Answer any five :

1. (a) Draw the orbital picture of the given compounds:



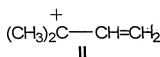
(ii) Benzene

(b) Write down the resonance structure of the following compounds:

(i) Diazomethane (ii) Phenanthrene

(c) Compare the dipole moment between pyrrole and furan.

(d) Arrange the stability order of the following carbocation.



(e) Find out the total symmetry elements in staggered form of ethane.

(f) What is SOMO? Determine which HMO is the SOMO in 1,3-pentadienyl radical.

(g) Compare the boiling and melting point between n-pentane and neopentane.

5x2=10

CC-2(Physical)

Answer all:

1. Which of the following properties are intensive? Heat capacity, specific heat, molar heat capacity.

2. Give examples of reaction having order 1/2 and 3/2.

3. State the classical quipartition principle?

4. What are the SI units and dimensions of van der Waals constants a and b.

5. "Adiabatic process is an isentropic process." Comment on the statement.

5x2=10