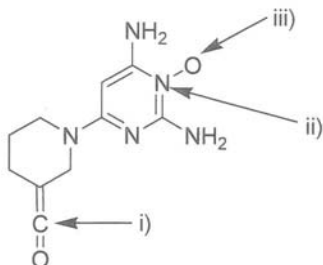


1. In the following structural formula, *every atom has a filled valence shell*. What are the formal charges of the atoms indicated as i), ii) and iii)?



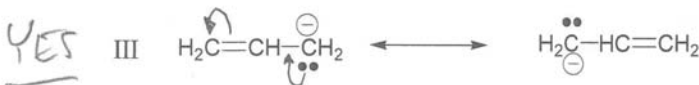
	Charge
Atom i	0
Atom ii	+1
Atom iii	-1

①

②

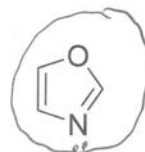
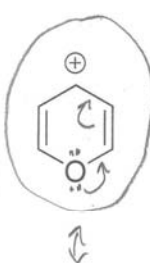
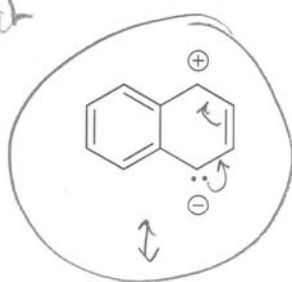
③

2. Which of the following are pairs of contributing *resonance* structures? Circle only the correct answer(s) (there is at least one correct structure and maybe more)



3. Predict which compounds show aromatic properties. Circle your choices. Incorrect answers will be subtracted from correct ones.

1 each



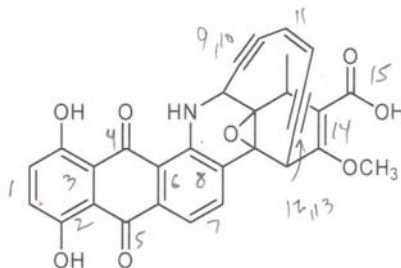
naphthalene



(not a Hückel number)

9

4. The molecule below is *Dynemicin A*, which is a potent cytotoxic compound whose derivatives may eventually find use as anticancer drugs.



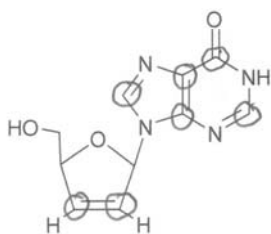
① if 13

### Dynemicin A

How many  $\pi$  (pi) bonds does this molecule possess?  
(write your answer in the box which is to the right)

15

5. What is the correct number of  $sp^2$  hybridized carbon atoms in *dideoxyinosine*, an antiviral agent in clinical use? Note, for clarity, not all hydrogen atoms are shown.



My answer is:

7

Dideoxyinosine

0.5 each.