

Chapter 3.1-3.2 and 24.1-24.2

Due Tuesday at 8:00

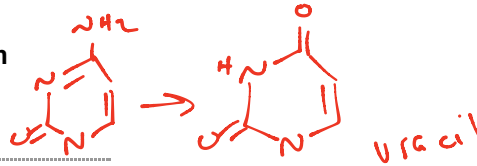
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1. Match the base (columns) with its corresponding organic frame (rows).

Mark only one oval per row.

	Purine	Pyrimidine
Adenine	<input checked="" type="radio"/>	<input type="radio"/>
Cytosine	<input type="radio"/>	<input checked="" type="radio"/>
Guanine	<input checked="" type="radio"/>	<input type="radio"/>
Thymine	<input type="radio"/>	<input checked="" type="radio"/>
Uracil	<input type="radio"/>	<input checked="" type="radio"/>

2. Please answer problem number 4 from Chapter 3.



3. Please answer problem number 5 from Chapter 3.

Mark only one oval per row.

	Yes, this is a valid reaction	No, this is not a valid reaction
Reaction a	<input checked="" type="radio"/>	<input type="radio"/>
Reaction b	<input type="radio"/>	<input checked="" type="radio"/>

this transfers diphosphate (P₁ or phosphate)

4. Edwin Chargaff discovered the first reliable quantitative methods to study DNA. His experiments led to the universally true Chargaff's Rule. What does this rule tell us?

*The amount of A in DNA is equal to the amount of T
 + G = C*

5. The E. coli K12 genome is 25.3% Guanine. Determine the % of the genome that is made up by Adenosine.

25.3% G, so 25.3% C → total = 50.6

A-T make up 49.4% , so 24.7% each

6. Summarize the four main features of the Watson and Crick model of DNA structure.

2 chains make helical axis
chains are anti-parallel (5'→3')

Sugar phosphate backbone + bases @ core
planar base pairs form

7. Single stranded RNA cannot form 2D or 3D structures.

Mark only one oval.

True

False

8. What is meant by "supercoiling" of DNA and why is it important for living cells?

DNA helices can wrap around itself to form very condense structures.

- this allows whole genomes to fit into a cell

9. The hydrogen bonds formed in a double helix do not account for very much stabilization energy. What intermolecular forces are important in the stabilization of a double helix? Select all that apply.

Check all that apply.

- Ion-ion - backbone interacts with cations; however this does not provide much stabilization energy
 - dipole-dipole
 - ion-dipole
 - London Dispersion Forces
- π stacking

10. For each IMF that you selected in the previous question, explain why it is important

see above

11. Please answer question 14 in Chapter 3 of your book

low CNet means that the backbone repels itself. ↑CNet stabilizes backbone

Send me a copy of my responses.

