

Topic 1.

INTRODUCTION TO MEDICAL CHEMISTRY: STRUCTURE OF ATOMS AND BOND CHARACTERISTICS

Theoretical QUESTIONS for preparation:

1. What is Medical Chemistry?
2. Structure of atoms
3. Hybrid orbitals
4. Chemical bonds
 - a. " σ " and " π " overlapping of orbitals
 - b. Delocalized bonding
5. Bond characteristics

Study questions and tasks

1. What is Medical Chemistry? _____

2. What are the main chemical elements of living organisms?

3. What is a valence?

4. Where are valence electrons situated?

5. What is the valence for: carbon (C) ____, oxygen (O) ____, hydrogen (H) ____, phosphorus (P) ____, nitrogen (N) ____ ?

6. What is a chemical bond?

7. Draw the structure of a single bond, a double bond, and a triple bond

8. Write down order numbers, atomic formulas of the elements and underline their valence electrons:

| | | | | |
|----------|--------------|------|----------------|-------|
| H | order number | ____ | atomic formula | _____ |
| O | order number | ____ | atomic formula | _____ |
| C | order number | ____ | atomic formula | _____ |
| N | order number | ____ | atomic formula | _____ |
| P | order number | ____ | atomic formula | _____ |
| S | order number | ____ | atomic formula | _____ |

8. What is hybridization of orbitals?

9. Draw the scheme of sp^3 hybridization, give an example

10. Draw the scheme of sp^2 hybridization, give an example

11. Draw the scheme of sp hybridization, give an example

12. Give a definition to:

| | |
|--------------------------|--|
| Bond polarity | |
| Bond energy | |
| Bond length | |