CHEM 4401 Molecular Spectroscopy: The rotational structure of molecules

1. The rotational structure of molecules is determined by:

A. The number of atoms in the molecule

B. The number of electrons in the molecule

C. The number of protons in the molecule

D. The number of neutrons in the molecule

2. The rotational structure of molecules is affected by:

A. The number of atoms in the molecule

B. The number of electrons in the molecule

C. The number of protons in the molecule

D. The number of neutrons in the molecule

3. The rotational structure of molecules is determined by the:

A. Arrangement of the atoms in the molecule

B. Arrangement of the electrons in the molecule

C. Arrangement of the protons in the molecule

D. Arrangement of the neutrons in the molecule

4. The rotational structure of molecules is affected by the:

A. Arrangement of the atoms in the molecule

B. Arrangement of the electrons in the molecule

C. Arrangement of the protons in the molecule

D. Arrangement of the neutrons in the molecule

5. The rotational structure of molecules is determined by the:

A. Shape of the molecule

B. Size of the molecule

C. Mass of the molecule

D. Charge of the molecule

6. The rotational structure of molecules is affected by the:

A. Shape of the molecule

B. Size of the molecule

C. Mass of the molecule

D. Charge of the molecule

7. The rotational structure of molecules is determined by the:

A. Bonding of the atoms in the molecule

B. Bonding of the electrons in the molecule

C. Bonding of the protons in the molecule

D. Bonding of the neutrons in the molecule

8. The rotational structure of molecules is affected by the:

A. Bonding of the atoms in the molecule

B. Bonding of the electrons in the molecule

C. Bonding of the protons in the molecule

D. Bonding of the neutrons in the molecule

9. The rotational structure of molecules is determined by the:

A. Motion of the atoms in the molecule

B. Motion of the electrons in the molecule

C. Motion of the protons in the molecule

D. Motion of the neutrons in the molecule

10. The rotational structure of molecules is affected by the:

A. Motion of the atoms in the molecule

B. Motion of the electrons in the molecule

C. Motion of the protons in the molecule

D. Motion of the neutrons in the molecule

11. The rotational structure of molecules is determined by the:

A. Interaction of the atoms in the molecule

B. Interaction of the electrons in the molecule

C. Interaction of the protons in the molecule

D. Interaction of the neutrons in the molecule

12. The rotational structure of molecules is affected by the:

A. Interaction of the atoms in the molecule

B. Interaction of the electrons in the molecule

C. Interaction of the protons in the molecule

D. Interaction of the neutrons in the molecule

13. The rotational structure of molecules is determined by the:

A. Energy of the molecule

B. Temperature of the molecule

C. Pressure of the molecule

D. All of the above

14. The rotational structure of molecules is affected by the:

A. Energy of the molecule

B. Temperature of the molecule

C. Pressure of the molecule

D. All of the above

15. The rotational structure of molecules is determined by the:

A. Angular momentum of the molecule

B. Magnetic moment of the molecule

C. Electric dipole moment of the molecule

D. All of the above

16. The rotational structure of molecules is affected by the:

A. Angular momentum of the molecule

B. Magnetic moment of the molecule

C. Electric dipole moment of the molecule

D. All of the above

17. The rotational structure of molecules is determined by the:

A. Spin of the molecule

B. Orbital angular momentum of the molecule

C. Total angular momentum of the molecule

D. All of the above

18. The rotational structure of molecules is affected by the:

A. Spin of the molecule

B. Orbital angular momentum of the molecule

C. Total angular momentum of the molecule

D. All of the above

19. The rotational structure of molecules is determined by the:

A. Symmetry of the molecule

B. Asymmetry of the molecule

C. Polarization of the molecule

D. All of the above

20. The rotational structure of molecules is affected by the:

A. Symmetry of the molecule

B. Asymmetry of the molecule

C. Polarization of the molecule

D. All of the above

Answer Key:

1. B
2. D
3. A
4. B
5. A
6. B
7. A
8. B
9. D
10. D
11. C
12. C
13. D
14. D
15. D
16. D
17. C
18. C
19. A
20. A