

Answers

I.1.F 2.T 3.F 4.F 5.F 6.F 7.F 8.T 9.F 10.T

II.1. Electronegativity 2.32 3. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^6$

4.Mechanical 5.tetrahedron

III. 1.a 2.c 3.d 4.d 5.a 6.a 7.b 8.a 9.b 10.a

11.a 12.b 13.b 14.d 15.f 16.b 17.c 18.a 19.b 20. c

IV. 1. -1.51eV 2. $1.92 \times 10^{-10} \text{N}$ 3. 51.9963amu

4. (1) metallic (2) covalent (3) ionic (4) van der Waals (5) metallic

(6) covalent and van der Waals (7) covalent

$$E_0 = -\frac{A}{r_0} + \frac{B}{r_0^n} = -\frac{A}{\left(\frac{nB}{A}\right)^{\frac{1}{n-1}}} + \frac{B}{\left(\frac{nB}{A}\right)^{\frac{n}{n-1}}}$$

5.

6. (1) $N = 6.64 \times 10^{10}$

(2) $a = 2.41 \text{cm}$

7. 3s subshells: $300(\frac{1}{2})$, $300(-\frac{1}{2})$

3p subshells: $310(\frac{1}{2})$, $310(-\frac{1}{2})$, $311(\frac{1}{2})$, $311(-\frac{1}{2})$, $31-1(\frac{1}{2})$, $31-1(-\frac{1}{2})$

3d subshells: $320(\frac{1}{2})$, $320(-\frac{1}{2})$, $321(\frac{1}{2})$, $321(-\frac{1}{2})$, $32-1(\frac{1}{2})$, $32-1(-\frac{1}{2})$,

$322(\frac{1}{2})$, $322(-\frac{1}{2})$, $32-2(\frac{1}{2})$, $32-2(-\frac{1}{2})$