

**7 • Liquids & Solids****IMF'S IN SOLIDS**

Indicate the **strongest** IMF holding together crystals of the following:

(You may want to draw Lewis dot diagrams in an effort to determine the geometry and shape)

|     |  | Molecular Crystal |                           |                | Metal          | Ionic Crystal | Network Solid  |
|-----|--|-------------------|---------------------------|----------------|----------------|---------------|----------------|
|     |  | London forces     | Dipole-dipole attractions | Hydrogen Bonds | Metallic Bonds | Ionic Bonds   | Covalent Bonds |
| 1.  | NH <sub>3</sub>                                  |                   |                           |                |                |               |                |
| 2.  | Kr   |                   |                           |                |                |               |                |
| 3.  | HCl  |                   |                           |                |                |               |                |
| 4.  | F <sub>2</sub>                                   |                   |                           |                |                |               |                |
| 5.  | KMnO <sub>4</sub>                                |                   |                           |                |                |               |                |
| 6.  | NaCl   |                   |                           |                |                |               |                |
| 7.  | SO <sub>2</sub>                                  |                   |                           |                |                |               |                |
| 8.  | CO <sub>2</sub>                                  |                   |                           |                |                |               |                |
| 9.  | C <sub>3</sub> H <sub>8</sub>                    |                   |                           |                |                |               |                |
| 10. | CH <sub>4</sub>                                  |                   |                           |                |                |               |                |
| 11. | CH <sub>3</sub> Cl                               |                   |                           |                |                |               |                |
| 12. | HF   |                   |                           |                |                |               |                |
| 13. | C <sub>6</sub> H <sub>6</sub>                    |                   |                           |                |                |               |                |
| 14. | NO   |                   |                           |                |                |               |                |
| 15. | H <sub>2</sub> SO <sub>4</sub>                   |                   |                           |                |                |               |                |
| 16. | WC   |                   |                           |                |                |               |                |
| 17. | Si   |                   |                           |                |                |               |                |
| 18. | SiO <sub>2</sub>                                 |                   |                           |                |                |               |                |
| 19. | C <sub>(graphite)</sub>                          |                   |                           |                |                |               |                |
| 20. | N <sub>2</sub>                                   |                   |                           |                |                |               |                |
| 21. | CH <sub>3</sub> OH                               |                   |                           |                |                |               |                |
| 22. | Ag   |                   |                           |                |                |               |                |
| 23. | (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> NH |                   |                           |                |                |               |                |
| 24. | NaOH   |                   |                           |                |                |               |                |
| 25. | Al   |                   |                           |                |                |               |                |

|     |                  |  |  |  |  |  |  |
|-----|------------------|--|--|--|--|--|--|
| 26. | PCl <sub>3</sub> |  |  |  |  |  |  |
|-----|------------------|--|--|--|--|--|--|

|     |                                 | Molecular Crystal |                           |                | Metal          | Ionic Crystal | Network Solid  |
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| 27. | XeF <sub>4</sub>                |                   |                           |                |                |               |                |
| 28. | He                              |                   |                           |                |                |               |                |
| 29. | Na                              |                   |                           |                |                |               |                |
| 30. | CO                              |                   |                           |                |                |               |                |
| 31. | Ar                              |                   |                           |                |                |               |                |
| 32. | Ba(OH) <sub>2</sub>             |                   |                           |                |                |               |                |
| 33. | O <sub>2</sub>                  |                   |                           |                |                |               |                |
| 34. | H <sub>2</sub> O                |                   |                           |                |                |               |                |
| 35. | NH <sub>4</sub> Cl              |                   |                           |                |                |               |                |
| 36. | Hg                              |                   |                           |                |                |               |                |
| 37. | P <sub>4</sub>                  |                   |                           |                |                |               |                |
| 38. | HCN                             |                   |                           |                |                |               |                |
| 39. | CaO                             |                   |                           |                |                |               |                |
| 40. | N <sub>2</sub> H <sub>2</sub>   |                   |                           |                |                |               |                |
| 41. | H <sub>2</sub>                  |                   |                           |                |                |               |                |
| 42. | Pb                              |                   |                           |                |                |               |                |
| 43. | XeF <sub>2</sub>                |                   |                           |                |                |               |                |
| 44. | SF <sub>4</sub>                 |                   |                           |                |                |               |                |
| 45. | SiC                             |                   |                           |                |                |               |                |
| 46. | Si <sub>4</sub> H <sub>10</sub> |                   |                           |                |                |               |                |
| 47. | PH <sub>3</sub>                 |                   |                           |                |                |               |                |
| 48. | SiH <sub>4</sub>                |                   |                           |                |                |               |                |
| 49. | H <sub>2</sub> Se               |                   |                           |                |                |               |                |
| 50. | C <sub>2</sub> H <sub>2</sub>   |                   |                           |                |                |               |                |
| 51. | I <sub>2</sub>                  |                   |                           |                |                |               |                |
| 52. | Cu                              |                   |                           |                |                |               |                |
| 53. | AsH <sub>3</sub>                |                   |                           |                |                |               |                |
| 54. | K <sub>2</sub> S                |                   |                           |                |                |               |                |

