**Multiple Choice Questions: 12 questions (1 mark each)**

1. A gas in a rigid (fixed-volume) container has a pressure of 2.13 atm. The gas is heated from 298 K to 425 K. What is the pressure of the gas at 425 K?

    a) 1.09 atm
    b) 2.13 atm
    c) 2.58 atm
    d) 3.04 atm
    e) 4.26 atm

2. Which of the following sets of quantum numbers could describe an electron in a 3d orbital?

| | n | $\ell$ | $m_\ell$ | $m_s$ |
|---|---|---|---|---|
| a) | 3 | 1 | 0 | +1/2 |
| b) | 3 | 2 | 1 | −1/2 |
| c) | 4 | 2 | -2 | +1/2 |
| d) | 3 | 3 | 1 | −1/2 |
| e) | 3 | 3 | 3 | +1/2 |

3. Consider the following thermochemical equation: