Question 1 *True/False: Any set that is a basis for a vector space V is also a linearly independent set.*

Multiple Choice:

(a) *True* ✓

(b) *False*

Question 2 *True/False: Any linearly independent set that is a subset of V is a basis for V.*

Multiple Choice:

(a) *True*

(b) *False* ✓

Question 3 *True/False: If the Span$\{\vec{b}_1, \ldots, \vec{b}_p\}$ is equal to some vector space V, then $\{\vec{b}_1, \ldots, \vec{b}_p\}$ is a basis for V.*

Multiple Choice:

(a) *True*

(b) *False* ✓

Question 4 *True/False: The pivot columns of A form a basis for $\operatorname{Col} A$.*

Multiple Choice:

(a) *True* ✓

(b) *False*

Question 5 *True/False: Suppose the matrix A below is row equivalent to the matrices U_1 and U_2 below. Which of the following statements is true?*

$$A = \begin{bmatrix} 2 & 6 & 4 & 7 \\ -2 & 3 & -4 & 2 \\ -6 & 0 & -12 & -8 \end{bmatrix} \qquad U_1 = \begin{bmatrix} 2 & 0 & 4 & 3 \\ 0 & 3 & 0 & 2 \\ 0 & 0 & 0 & 1 \end{bmatrix} \qquad U_2 = \begin{bmatrix} 1 & 0 & 2 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Multiple Choice:

(a) $\left\{ \begin{bmatrix} 2 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 0 \\ 3 \\ 0 \end{bmatrix}, \begin{bmatrix} 3 \\ 2 \\ 1 \end{bmatrix} \right\}$ *forms a basis for* Col A.

(b) $\left\{ \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} \right\}$ *forms a basis for* Col A.

(c) $\left\{ \begin{bmatrix} 2 \\ -2 \\ -6 \end{bmatrix}, \begin{bmatrix} 6 \\ 3 \\ 0 \end{bmatrix}, \begin{bmatrix} 7 \\ 2 \\ -8 \end{bmatrix} \right\}$ *forms a basis for* Col A. ✓