## EXERCISES OF CHAPTER 2

**Question 1.** Suppose that A is an  $m \times n$  matrix and AX = b has infinitely many solutions. Which of the following statement must be true?

- 1.  $m \leq n$
- 2.  $n \leq m$
- 3. rankA = n
- 4. rankA < n

**Question 2.** Find all value(s) of *a* for which AX = 0 has non-trivial solution, where

$$A = \begin{bmatrix} 0 & 1 & 2 \\ 2 & 1 & 1 \\ 1 & a & 2 \end{bmatrix}$$